OIPE SC100
MAY 14 2004
PATENT & TRADEMARK OFFICE

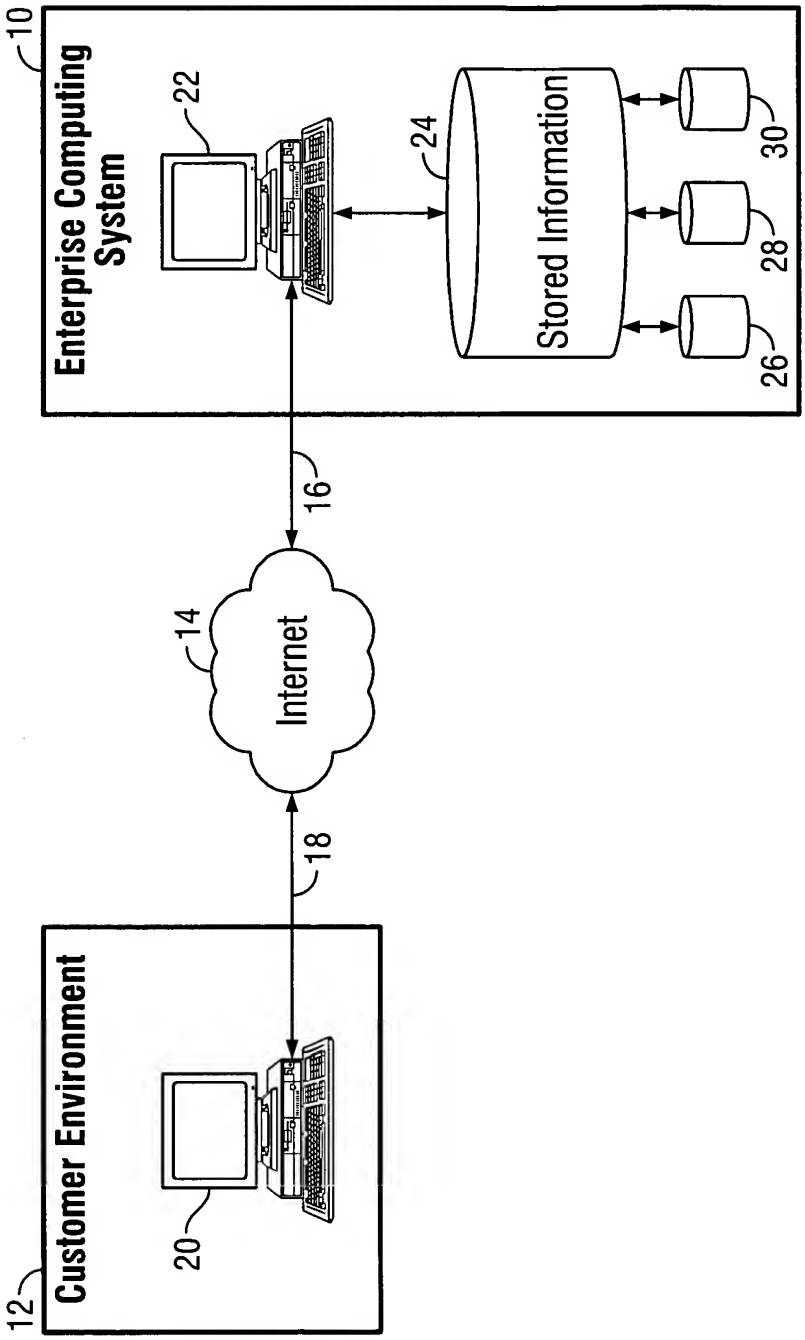

FIG. 1

2/26

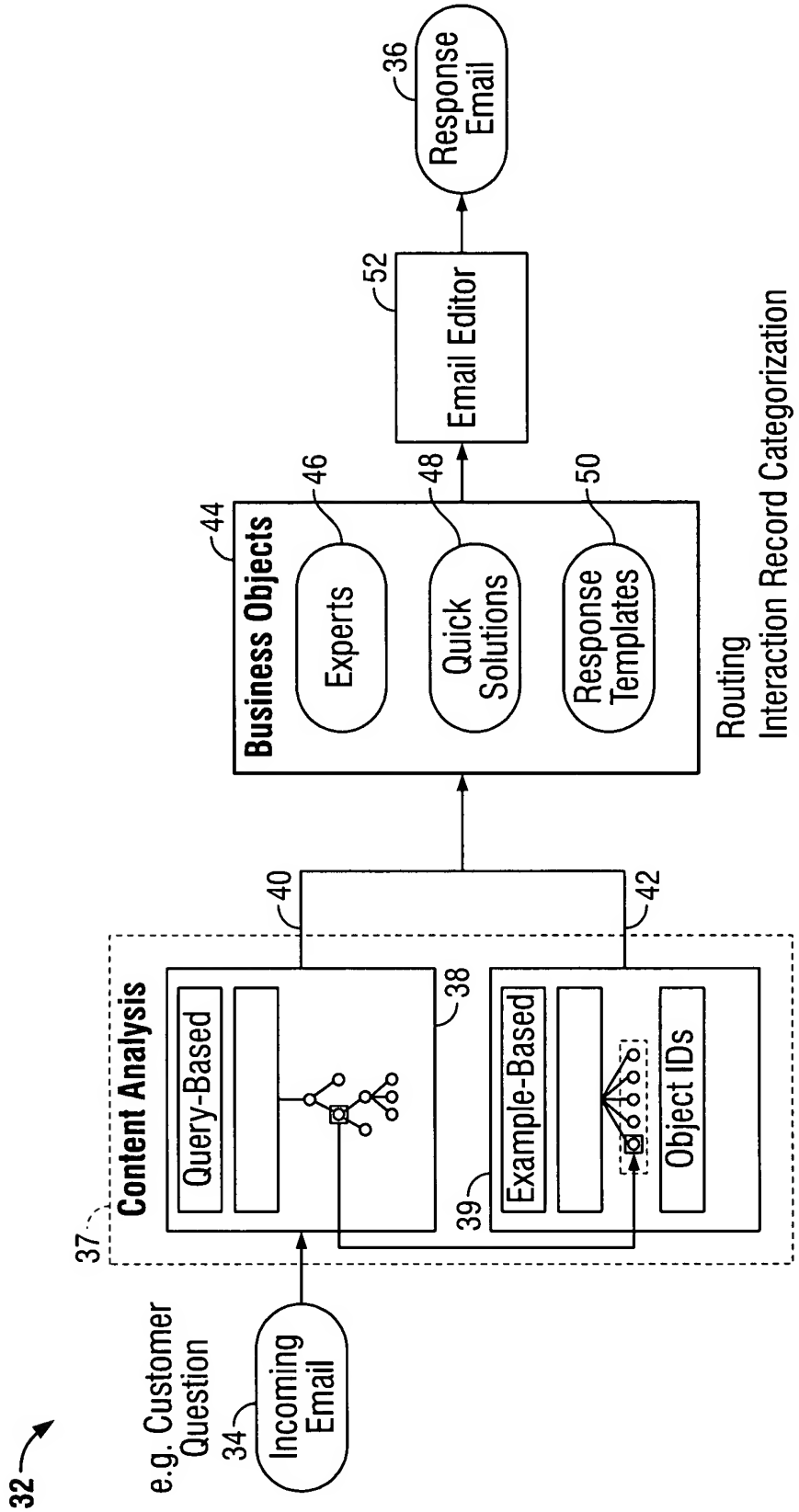
32
e.g. Customer Question
34
Incoming Email
37
Content Analysis
Query-Based
38
Example-Based
39
Object IDs
40
42
44
Business Objects
46
Experts
48
Quick Solutions
50
Response Templates
52
Email Editor
36
Response Email
Routing
Interaction Record Categorization
Quick Solutions
Auto Response

FIG. 2A

3/26

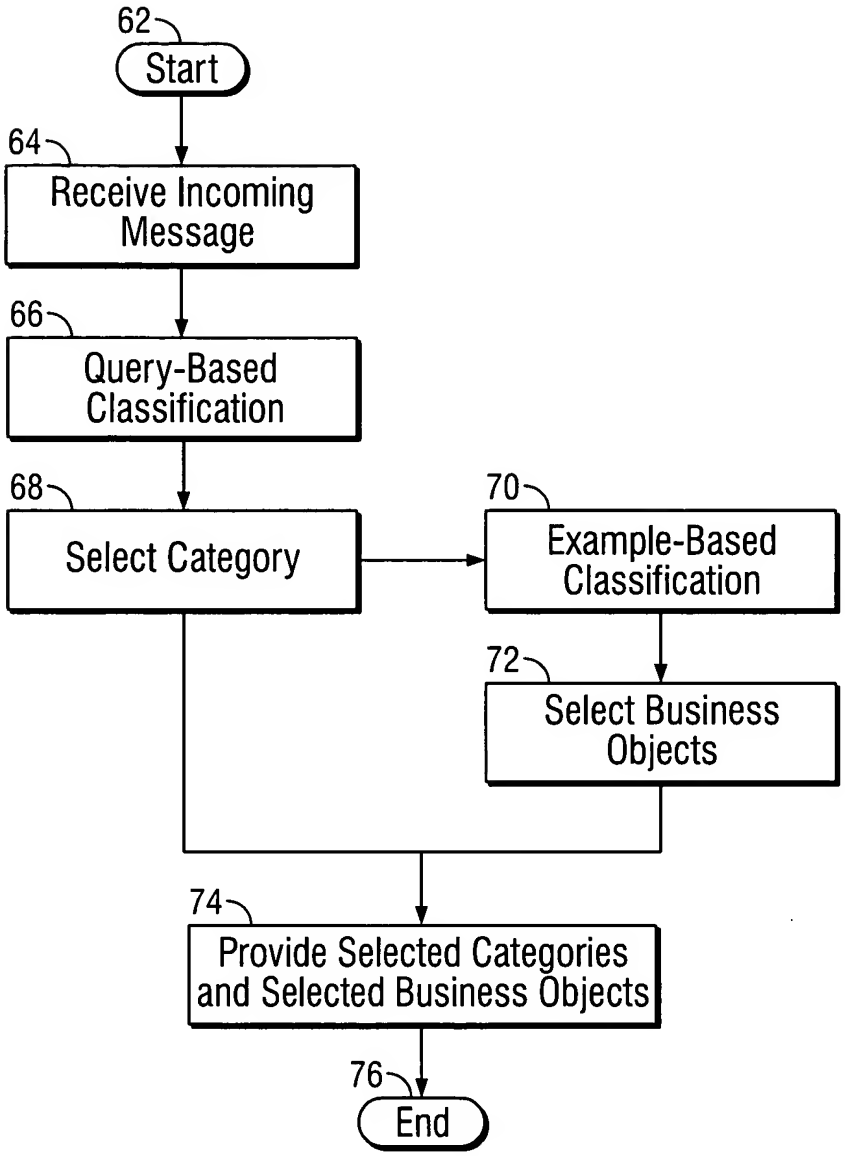
62
Start
64
Receive Incoming Message
66
Query-Based Classification
68
Select Category
70
Example-Based Classification
72
Select Business Objects
74
Provide Selected Categories and Selected Business Objects
76
End

FIG. 2B

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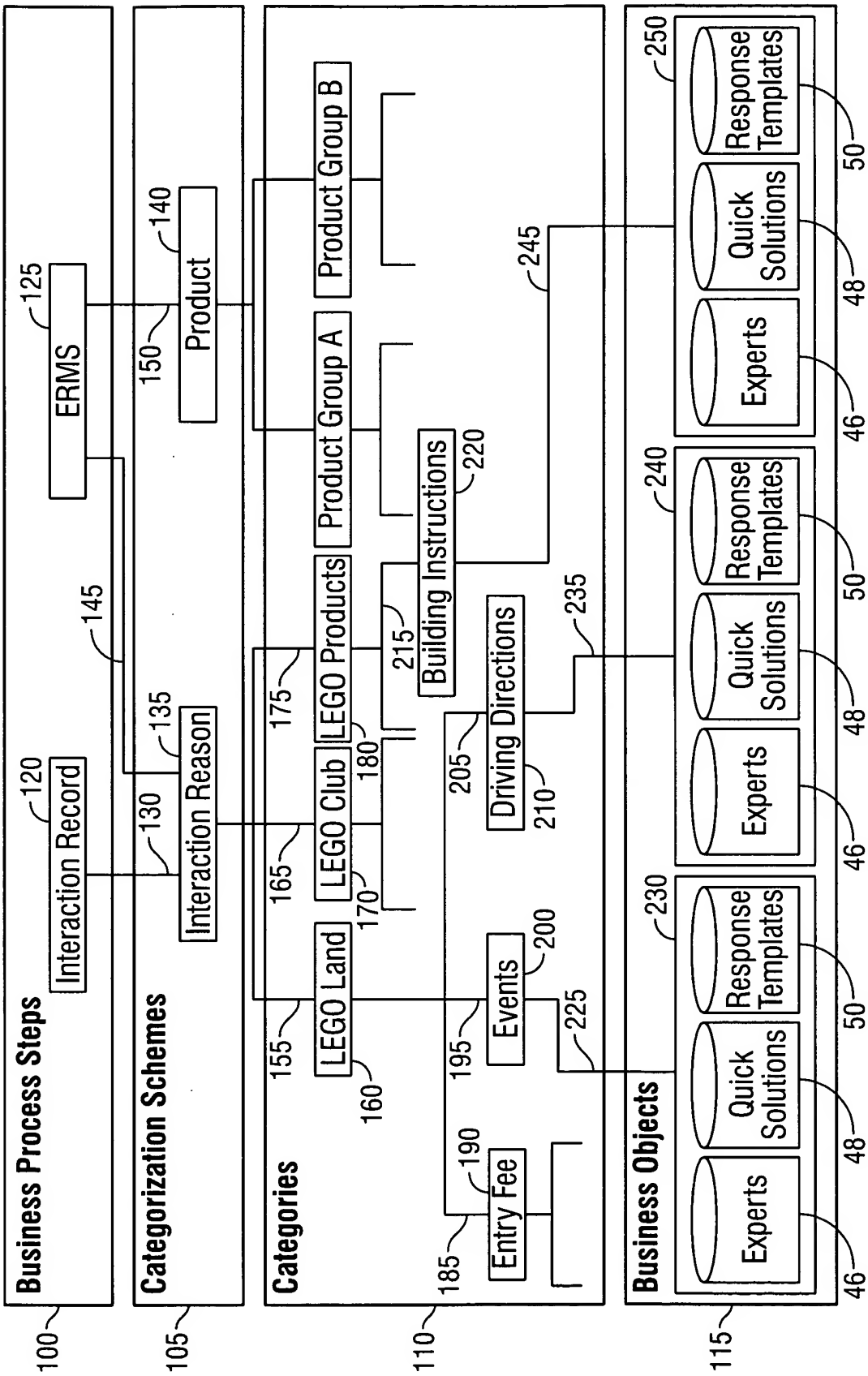
Business Process Steps
Interaction Record
ERMS
Categorization Schemes
Interaction Reason
Product
Categories
LEGO Land
LEGO Club
LEGO Products
Product Group A
Product Group B
Building Instructions
Driving Directions
Events
Entry Fee
Business Objects
Experts
Quick Solutions
Response Templates
100
105
110
115
120
125
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
46
48
50

FIG. 3

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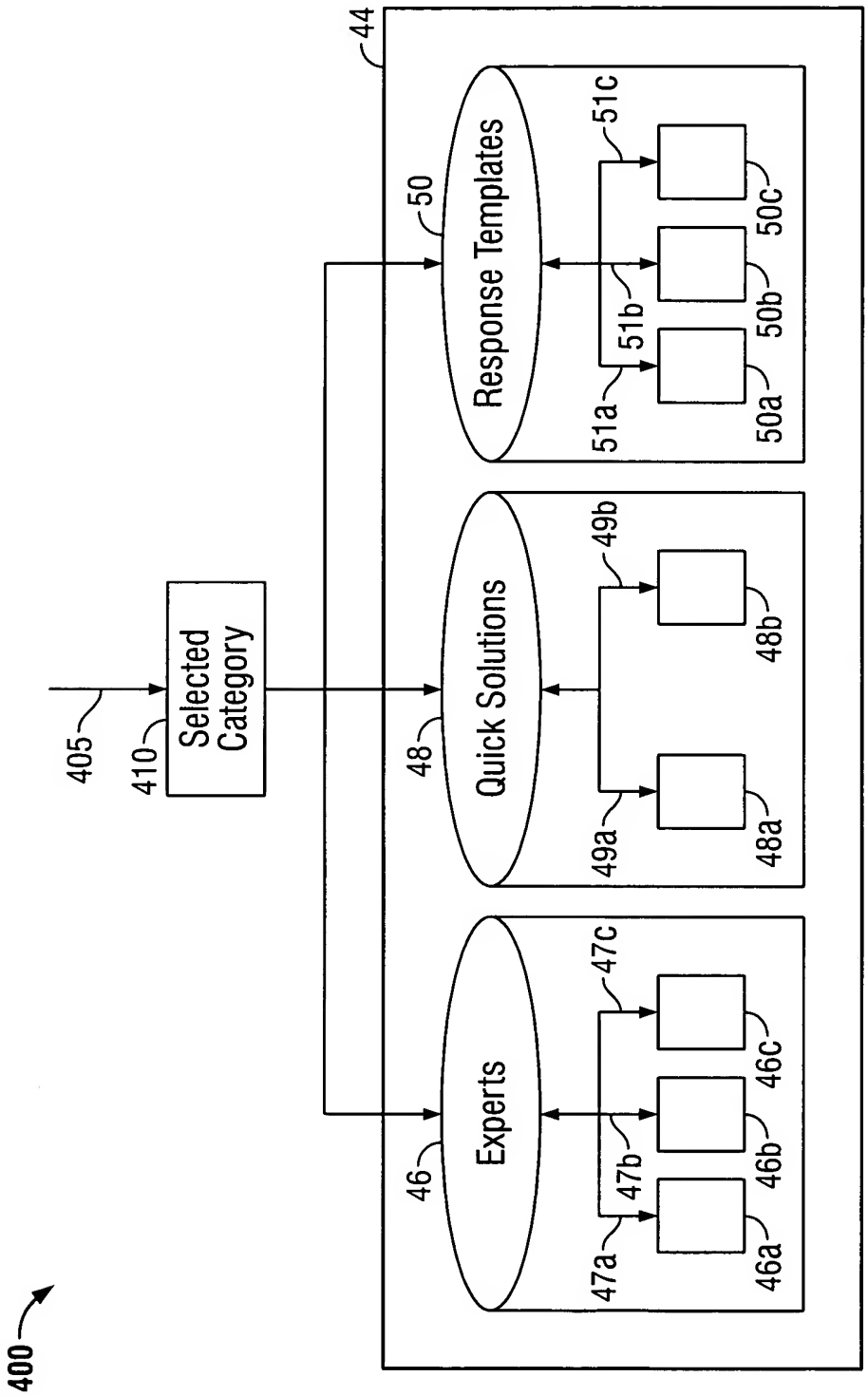
400
405
410
Selected Category
44
46
Experts
47a
47b
47c
46a
46b
46c
48
Quick Solutions
49a
49b
48a
48b
50
Response Templates
51a
51b
51c
50a
50b
50c

FIG. 4

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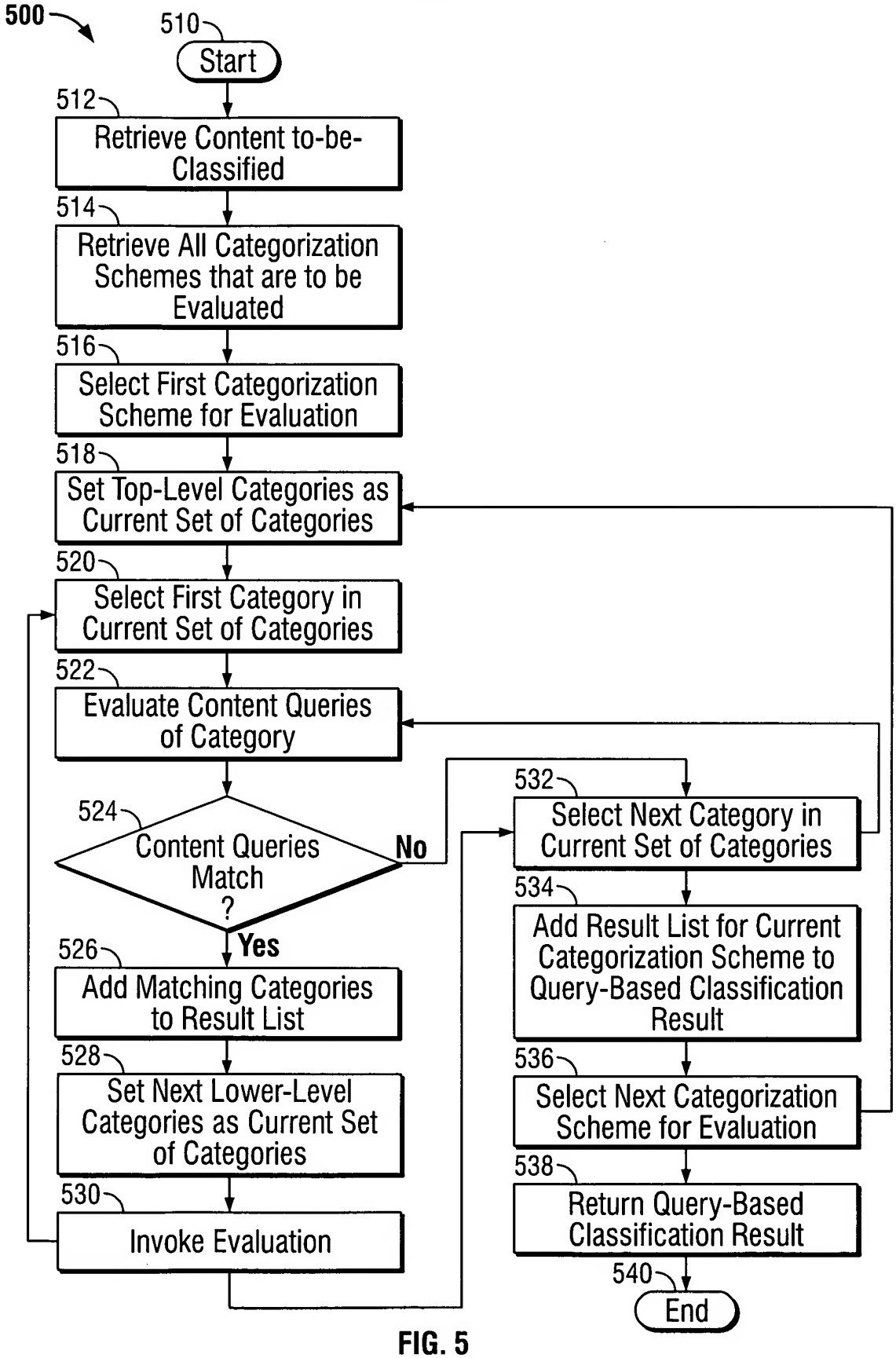
500
510
Start
512
Retrieve Content to-be-Classified
514
Retrieve All Categorization Schemes that are to be Evaluated
516
Select First Categorization Scheme for Evaluation
518
Set Top-Level Categories as Current Set of Categories
520
Select First Category in Current Set of Categories
522
Evaluate Content Queries of Category
524
Content Queries Match ?
No
Yes
526
Add Matching Categories to Result List
528
Set Next Lower-Level Categories as Current Set of Categories
530
Invoke Evaluation
532
Select Next Category in Current Set of Categories
534
Add Result List for Current Categorization Scheme to Query-Based Classification Result
536
Select Next Categorization Scheme for Evaluation
538
Return Query-Based Classification Result
540
End

FIG. 5

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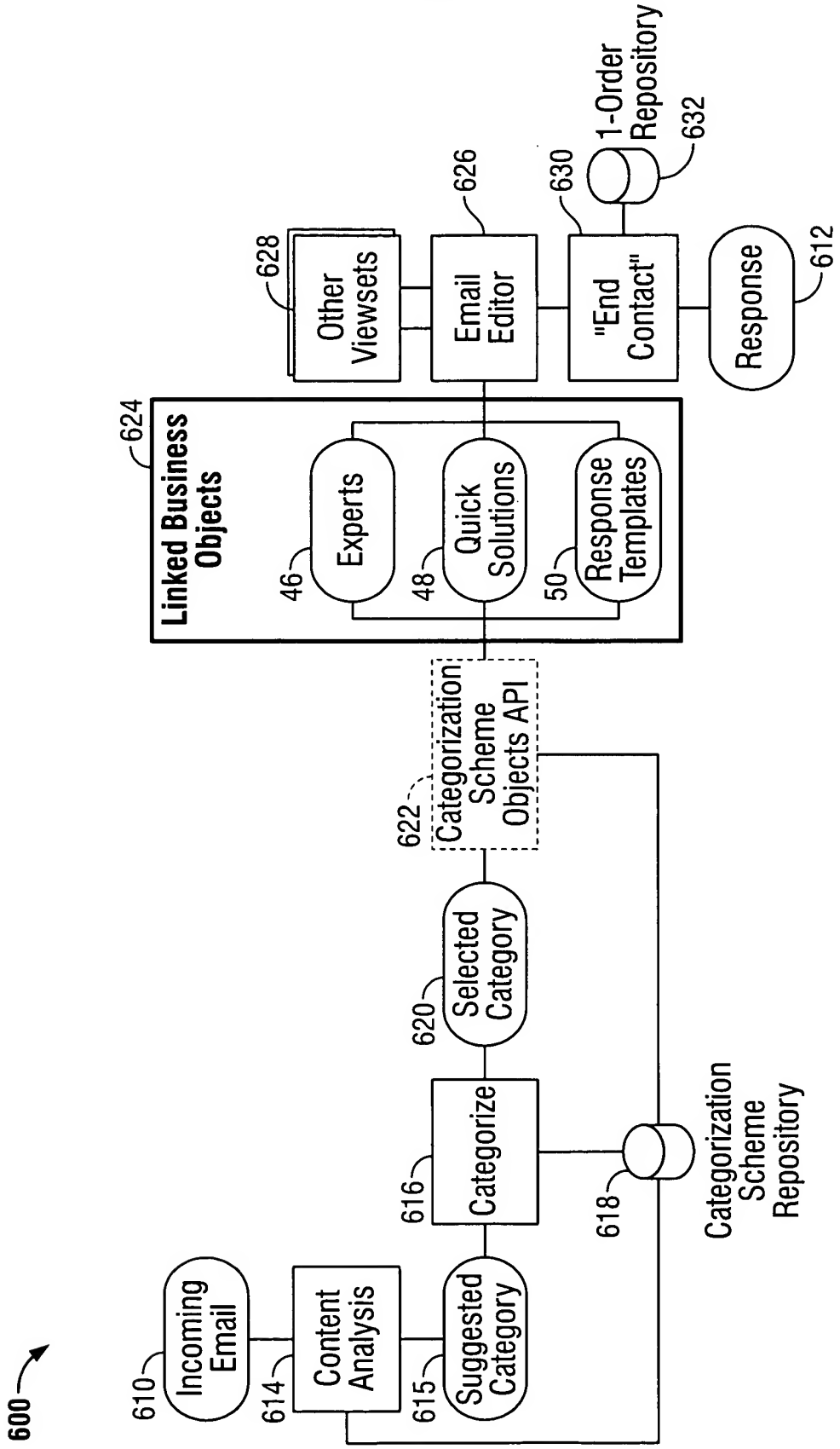
600
610
Incoming Email
614
Content Analysis
615
Suggested Category
616
Categorize
618
Categorization Scheme Repository
620
Selected Category
622
Categorization Scheme Objects API
624
Linked Business Objects
46
Experts
48
Quick Solutions
50
Response Templates
628
Other Viewsets
626
Email Editor
630
"End Contact"
632
1-Order Repository
612
Response

FIG. 6

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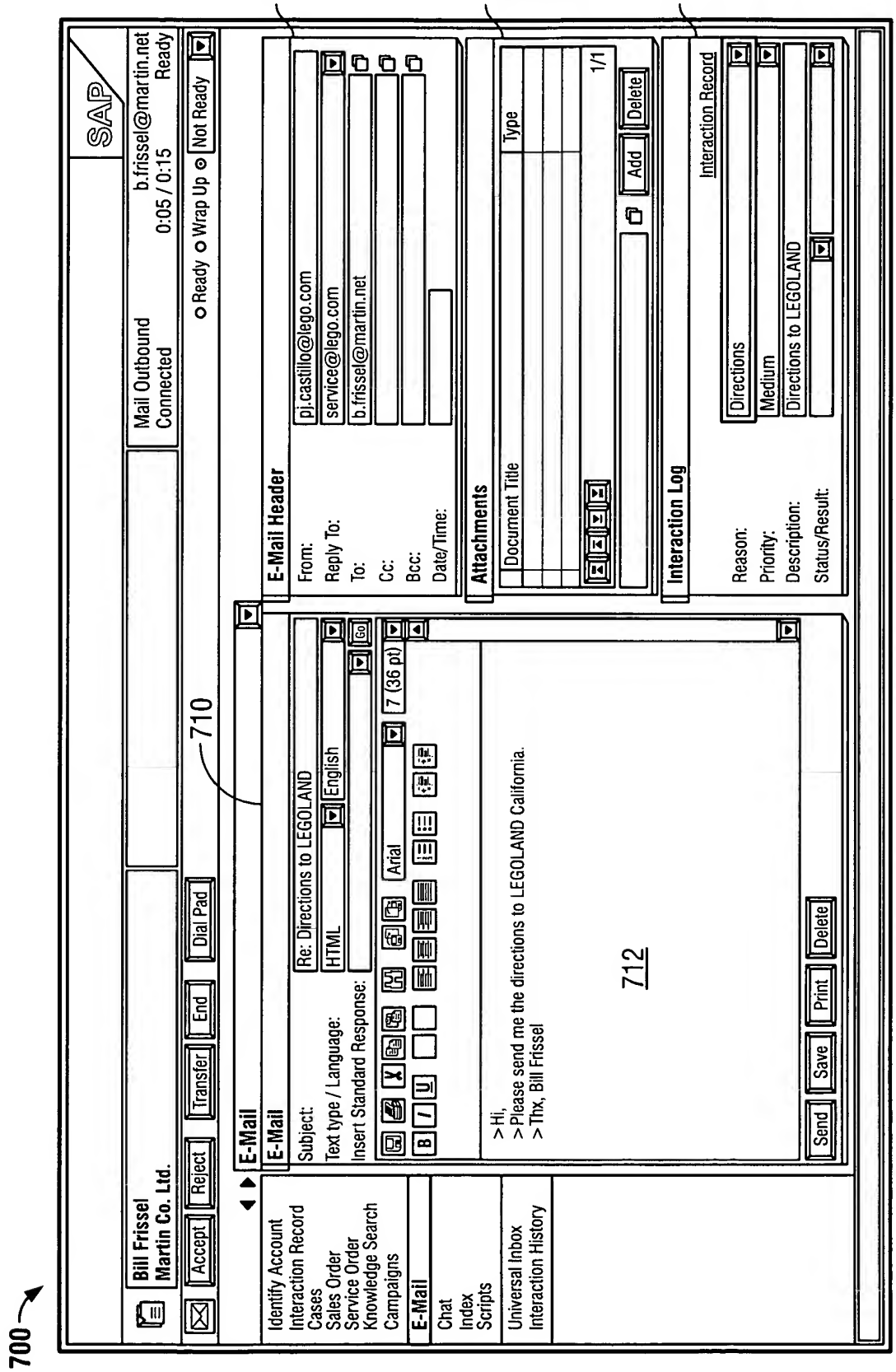
700
710
712
714
716
718
SAP
Bill Frissel
Martin Co. Ltd.
Mail Outbound
Connected
b.frissel@martin.net
0:05 / 0:15
Ready
Accept
Reject
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
E-Mail
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
E-Mail
Subject:
Re: Directions to LEGOLAND
Text type / Language:
HTML
English
Insert Standard Response:
Go
Arial
7 (36 pt)
> Hi,
> Please send me the directions to LEGOLAND California.
> Thx, Bill Frissel
Send
Save
Print
Delete
E-Mail Header
From:
pj.castillo@lego.com
Reply To:
service@lego.com
To:
b.frissel@martin.net
Cc:
Bcc:
Date/Time:
Attachments
Document Title
Type
1/1
Add
Delete
Interaction Log
Interaction Record
Reason:
Directions
Priority:
Medium
Description:
Directions to LEGOLAND
Status/Result:

FIG. 7A

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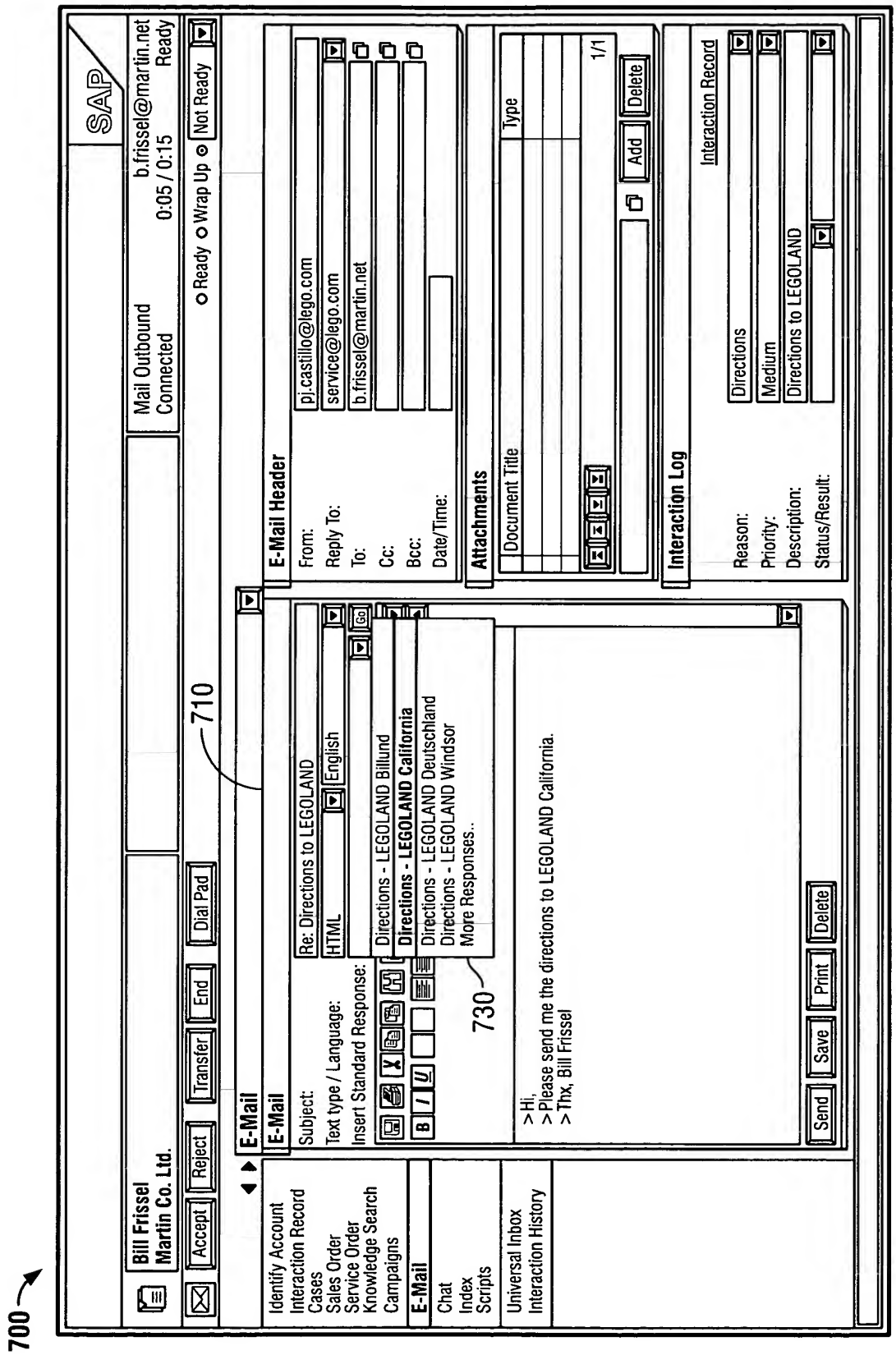
700
710
730
SAP
Bill Frissel
Martin Co. Ltd.
Accept
Reject
Transfer
End
Dial Pad
Mail Outbound
Connected
b.frissel@martin.net
0:05 / 0:15
Ready
Ready
Wrap Up
Not Ready
E-Mail
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
E-Mail
Subject:
Re: Directions to LEGOLAND
Text type / Language:
HTML
English
Insert Standard Response:
Directions - LEGOLAND Billund
Directions - LEGOLAND California
Directions - LEGOLAND Deutschland
Directions - LEGOLAND Windsor
More Responses..
> Hi,
> Please send me the directions to LEGOLAND California.
> Thx, Bill Frissel
Send
Save
Print
Delete
E-Mail Header
From:
pj.castillo@lego.com
Reply To:
service@lego.com
To:
b.frissel@martin.net
Cc:
Bcc:
Date/Time:
Attachments
Document Title
Type
1/1
Add
Delete
Interaction Log
Interaction Record
Reason:
Directions
Priority:
Medium
Description:
Directions to LEGOLAND
Status/Result:

FIG. 7B

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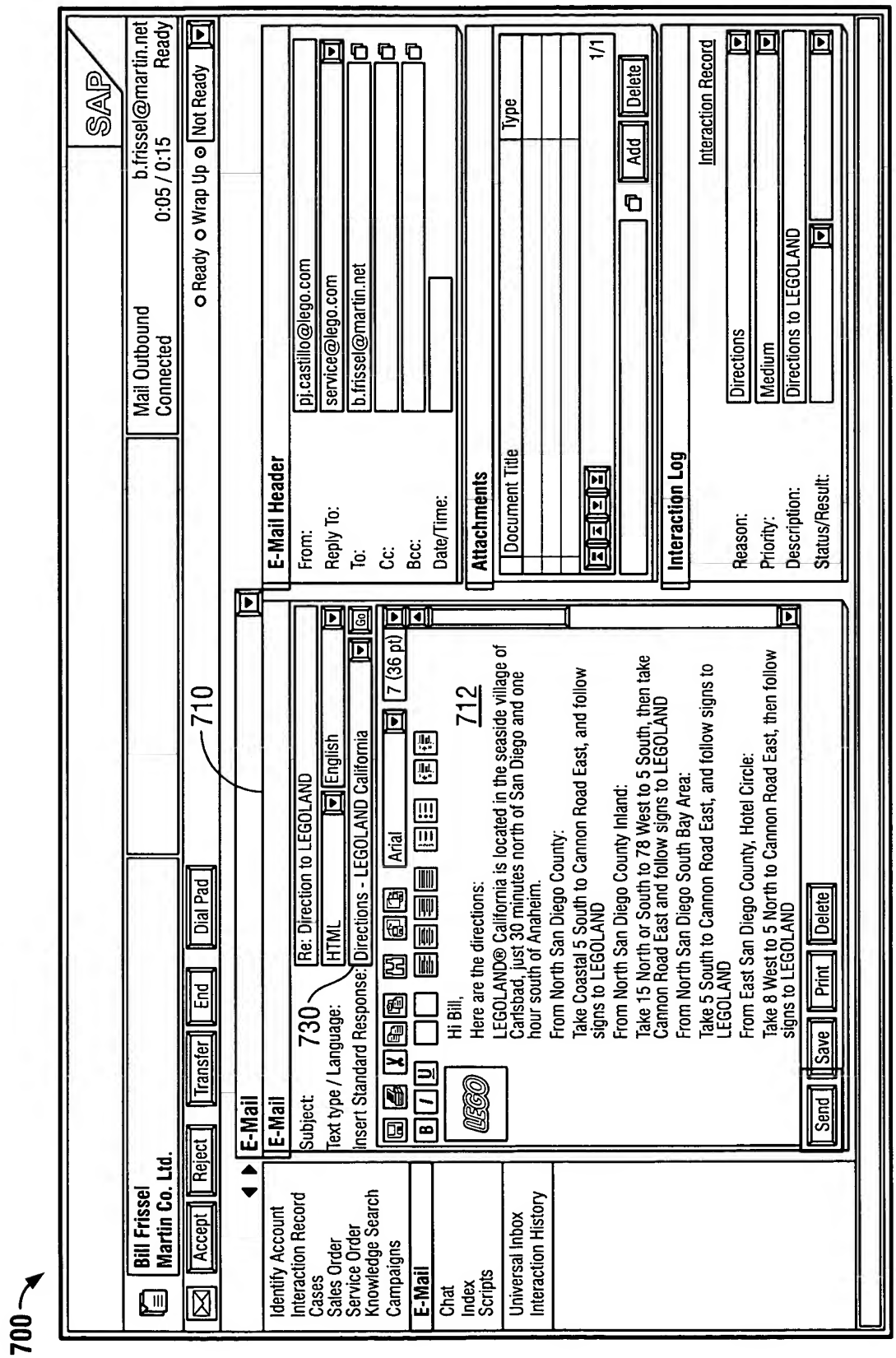
700
710
730
712
SAP
Bill Frissel
Martin Co. Ltd.
Mail Outbound
Connected
b.frissel@martin.net
0:05 / 0:15
Ready
Accept
Reject
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
E-Mail
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
E-Mail
Subject:
Re: Direction to LEGOLAND
Text type / Language:
HTML
English
Insert Standard Response:
Directions - LEGOLAND California
Arial
7 (36 pt)
Hi Bill,
Here are the directions:
LEGOLAND® California is located in the seaside village of Carlsbad, just 30 minutes north of San Diego and one hour south of Anaheim.
From North San Diego County:
Take Coastal 5 South to Cannon Road East, and follow signs to LEGOLAND
From North San Diego County Inland:
Take 15 North or South to 78 West to 5 South, then take Cannon Road East and follow signs to LEGOLAND
From North San Diego South Bay Area:
Take 5 South to Cannon Road East, and follow signs to LEGOLAND
From East San Diego County, Hotel Circle:
Take 8 West to 5 North to Cannon Road East, then follow signs to LEGOLAND
Send
Save
Print
Delete
E-Mail Header
From:
Reply To:
To:
Cc:
Bcc:
Date/Time:
pj.castillo@lego.com
service@lego.com
b.frissel@martin.net
Attachments
Document Title
Type
1/1
Add
Delete
Interaction Log
Interaction Record
Reason:
Priority:
Description:
Status/Result:
Directions
Medium
Directions to LEGOLAND

FIG. 7C

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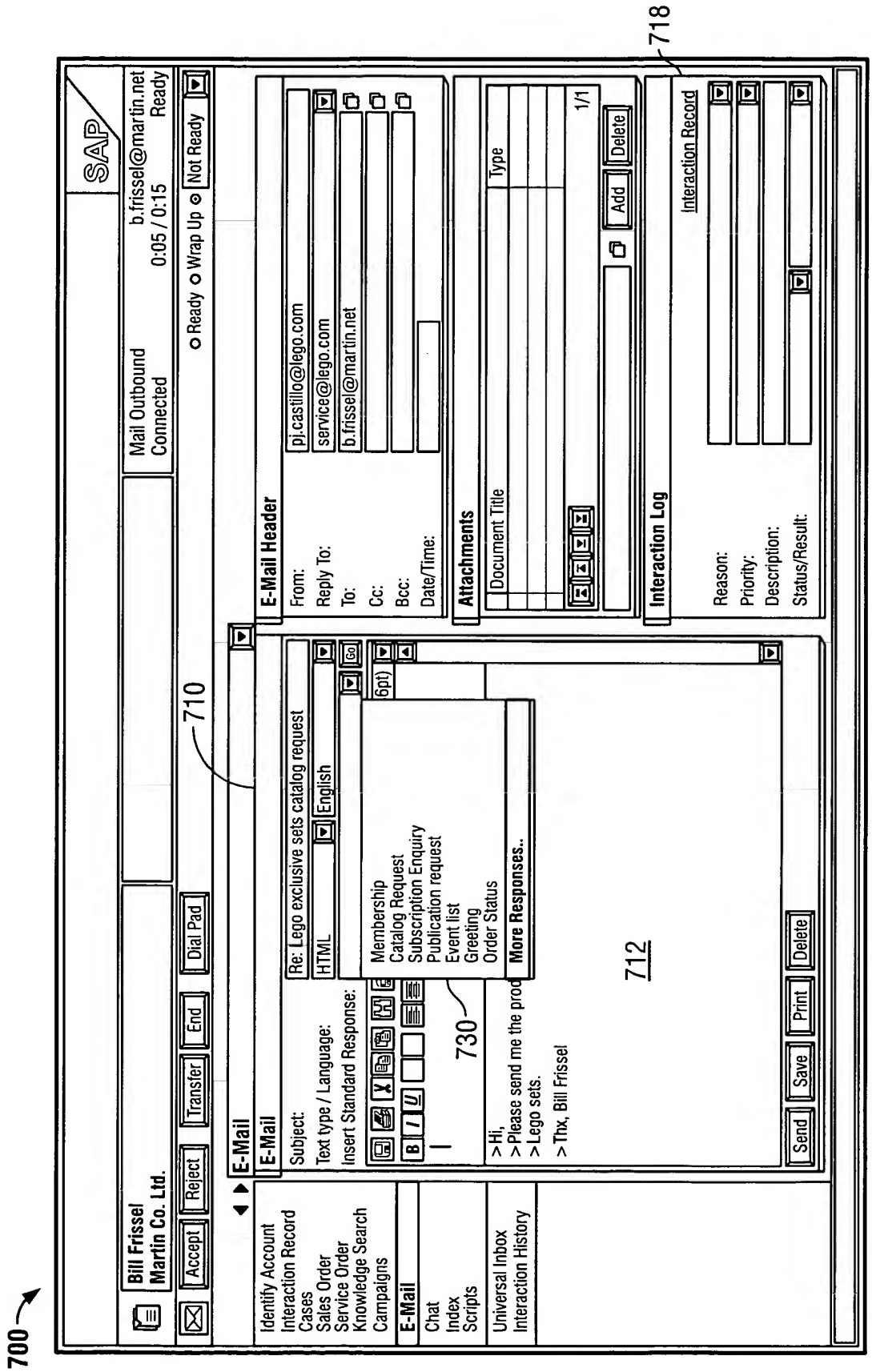
700
SAP
Bill Frissel
Martin Co. Ltd.
Mail Outbound
Connected
b.frissel@martin.net
0:05 / 0:15
Ready
Accept
Reject
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
710
E-Mail
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
E-Mail
Subject:
Re: Lego exclusive sets catalog request
Text type / Language:
HTML
English
Insert Standard Response:
Go
6pt)
Membership
Catalog Request
Subscription Enquiry
Publication request
Event list
Greeting
Order Status
730
> Hi,
> Please send me the prod
> Lego sets.
> Thx, Bill Frissel
More Responses..
712
Send
Save
Print
Delete
E-Mail Header
From:
Reply To:
To:
Cc:
Bcc:
Date/Time:
pj.castillo@lego.com
service@lego.com
b.frissel@martin.net
Attachments
Document Title
Type
1/1
Add
Delete
Interaction Log
718
Interaction Record
Reason:
Priority:
Description:
Status/Result:

FIG. 8A

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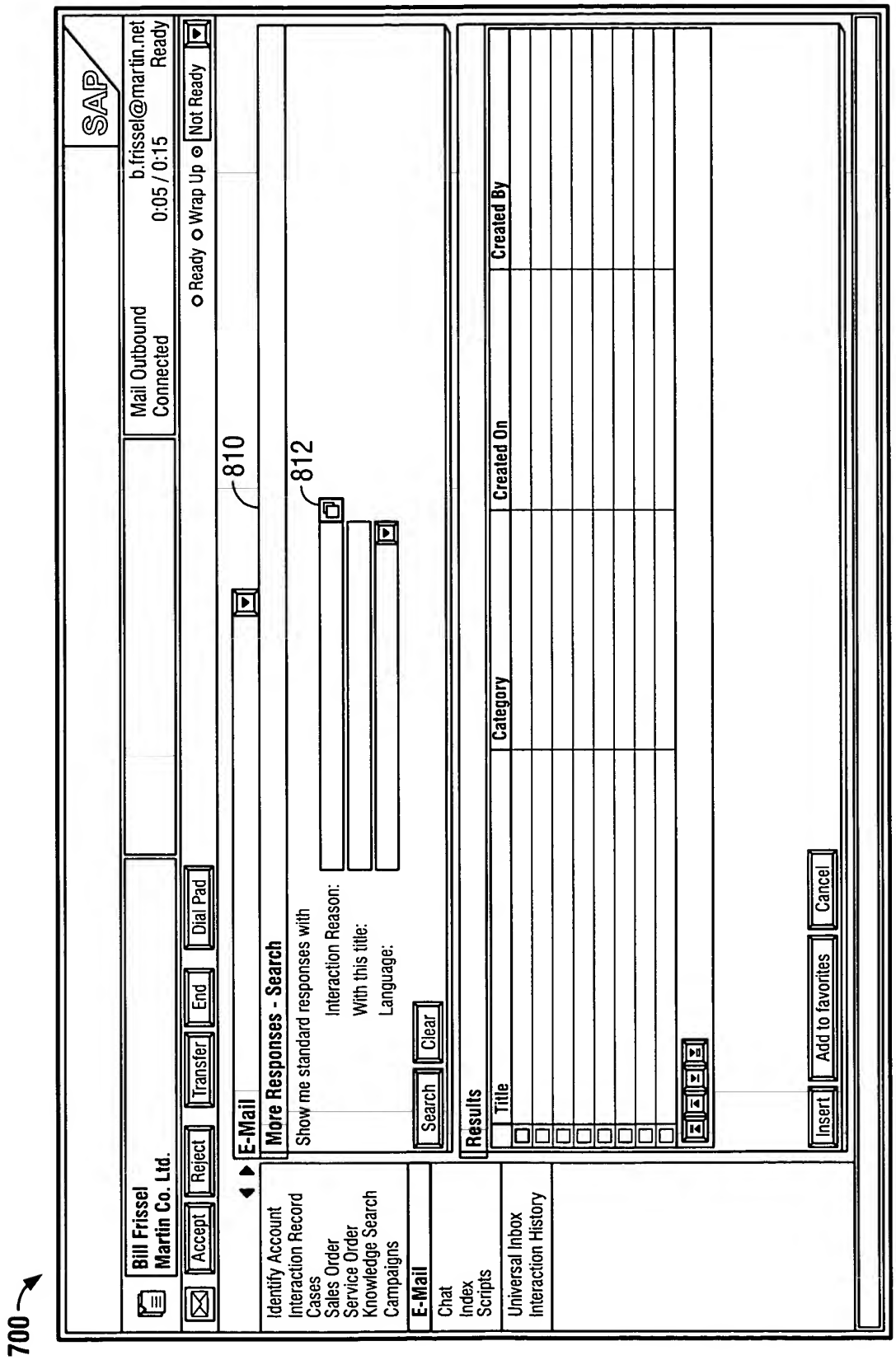
700
SAP
Bill Frissel
Martin Co. Ltd.
Mail Outbound
Connected
b.frissel@martin.net
0:05 / 0:15
Ready
Accept
Reject
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
E-Mail
810
812
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
More Responses - Search
Show me standard responses with
Interaction Reason:
With this title:
Language:
Search
Clear
Results
Title
Category
Created On
Created By
Insert
Add to favorites
Cancel

FIG. 8B

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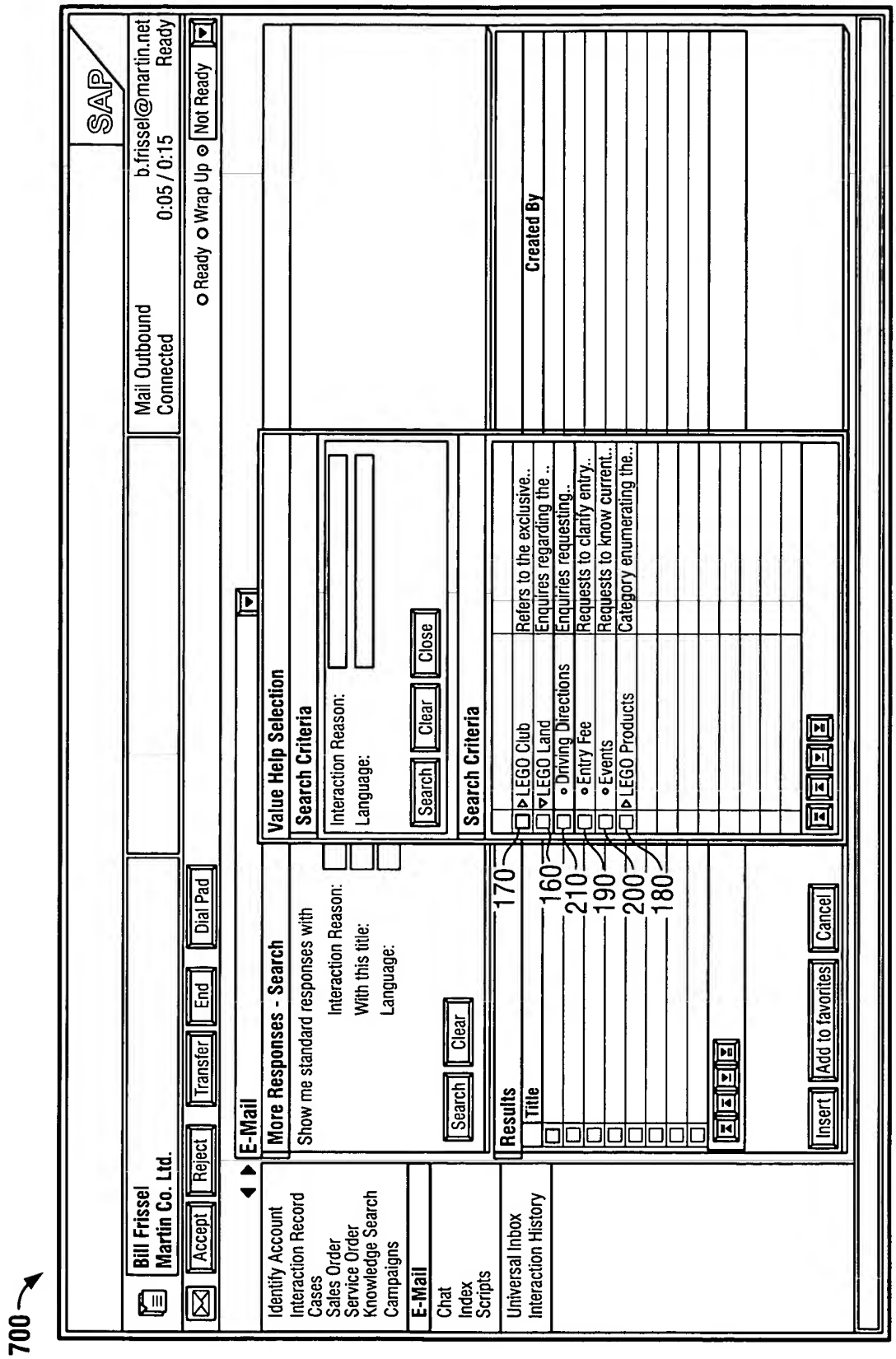
700
SAP
Bill Frissel
Martin Co. Ltd.
Mail Outbound
Connected
b.frissel@martin.net
0:05 / 0:15
Ready
Accept
Reject
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
E-Mail
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
More Responses - Search
Show me standard responses with
Interaction Reason:
With this title:
Language:
Search
Clear
Results
Title
Insert
Add to favorites
Cancel
Value Help Selection
Search Criteria
Interaction Reason:
Language:
Search
Clear
Close
Search Criteria
LEGO Club
LEGO Land
Driving Directions
Entry Fee
Events
LEGO Products
Refers to the exclusive..
Enquires regarding the ..
Enquiries requesting..
Requests to clarify entry..
Requests to know current..
Category enumerating the..
Created By
170
160
210
190
200
180

FIG. 8C

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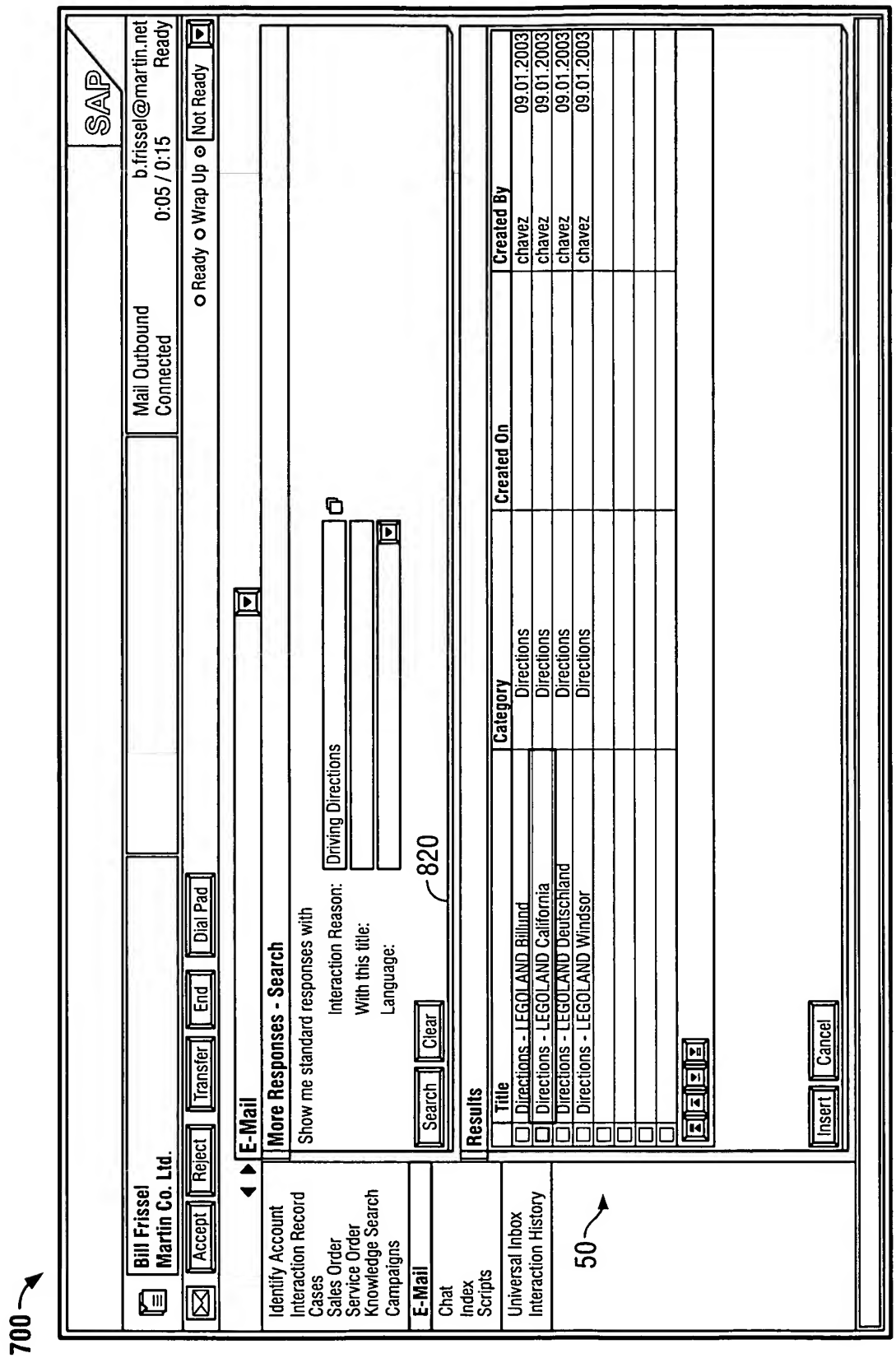
700
SAP
Bill Frissel
Martin Co. Ltd.
Mail Outbound
Connected
b.frissel@martin.net
0:05 / 0:15
Ready
Accept
Reject
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
E-Mail
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
50
More Responses - Search
Show me standard responses with
Interaction Reason:
Driving Directions
With this title:
Language:
Search
Clear
820
Results
Title
Category
Created On
Created By
Directions - LEGOLAND Billund
Directions
chavez
09.01.2003
Directions - LEGOLAND California
Directions
chavez
09.01.2003
Directions - LEGOLAND Deutschland
Directions
chavez
09.01.2003
Directions - LEGOLAND Windsor
Directions
chavez
09.01.2003
Insert
Cancel

FIG. 8D

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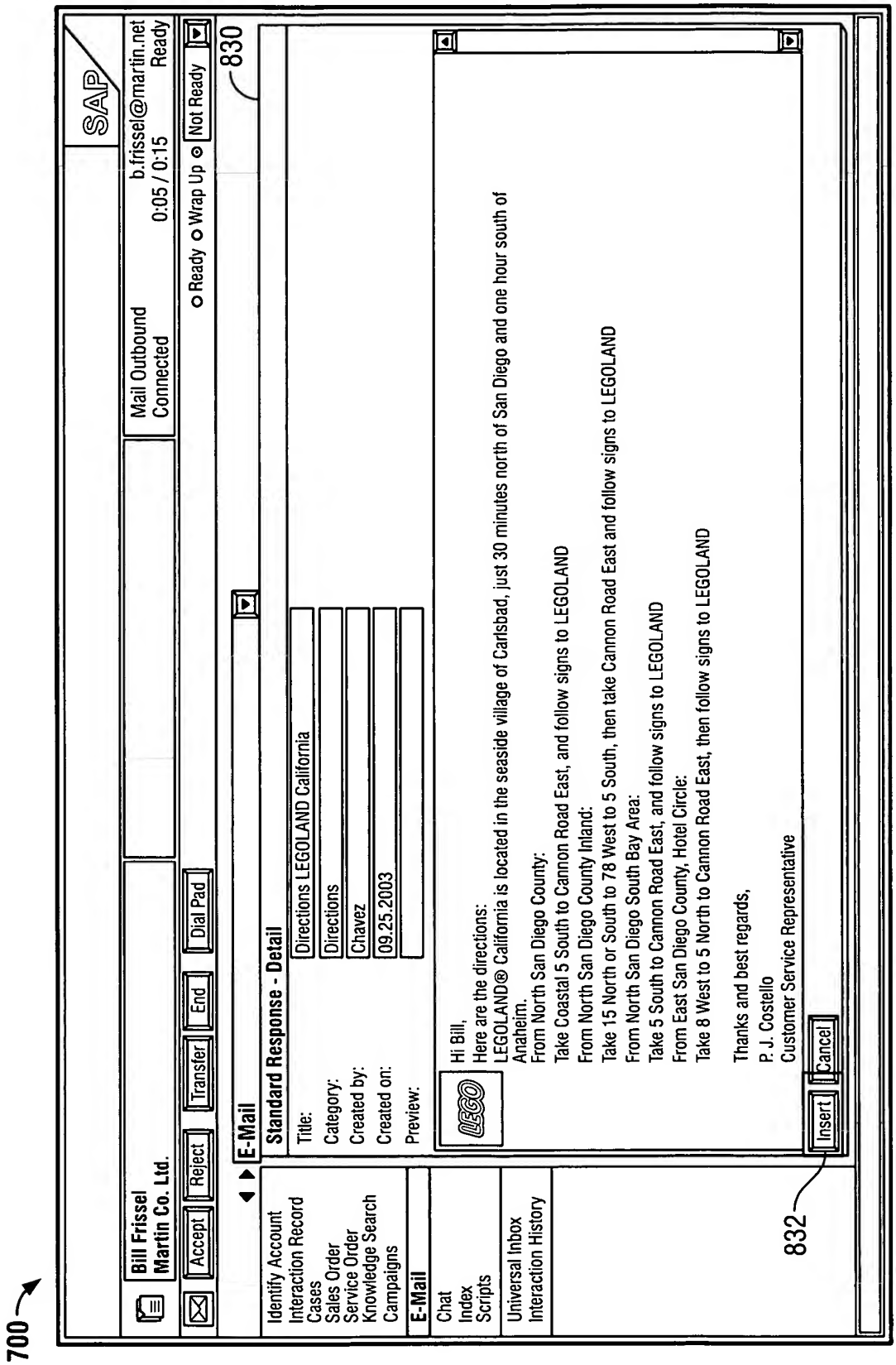
700
SAP
Bill Frissel
Martin Co. Ltd.
Mail Outbound
Connected
b.frissel@martin.net
Ready
0:05 / 0:15
Accept
Reject
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
E-Mail
830
Identify
Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
Standard Response - Detail
Title:
Directions LEGOLAND California
Category:
Directions
Created by:
Chavez
Created on:
09.25.2003
Preview:
Hi Bill,
Here are the directions:
LEGOLAND® California is located in the seaside village of Carlsbad, just 30 minutes north of San Diego and one hour south of Anaheim.
From North San Diego County:
Take Coastal 5 South to Cannon Road East, and follow signs to LEGOLAND
From North San Diego County Inland:
Take 15 North or South to 78 West to 5 South, then take Cannon Road East and follow signs to LEGOLAND
From North San Diego South Bay Area:
Take 5 South to Cannon Road East, and follow signs to LEGOLAND
From East San Diego County, Hotel Circle:
Take 8 West to 5 North to Cannon Road East, then follow signs to LEGOLAND
Thanks and best regards,
P. J. Costello
Customer Service Representative
832
Insert
Cancel

FIG. 8E

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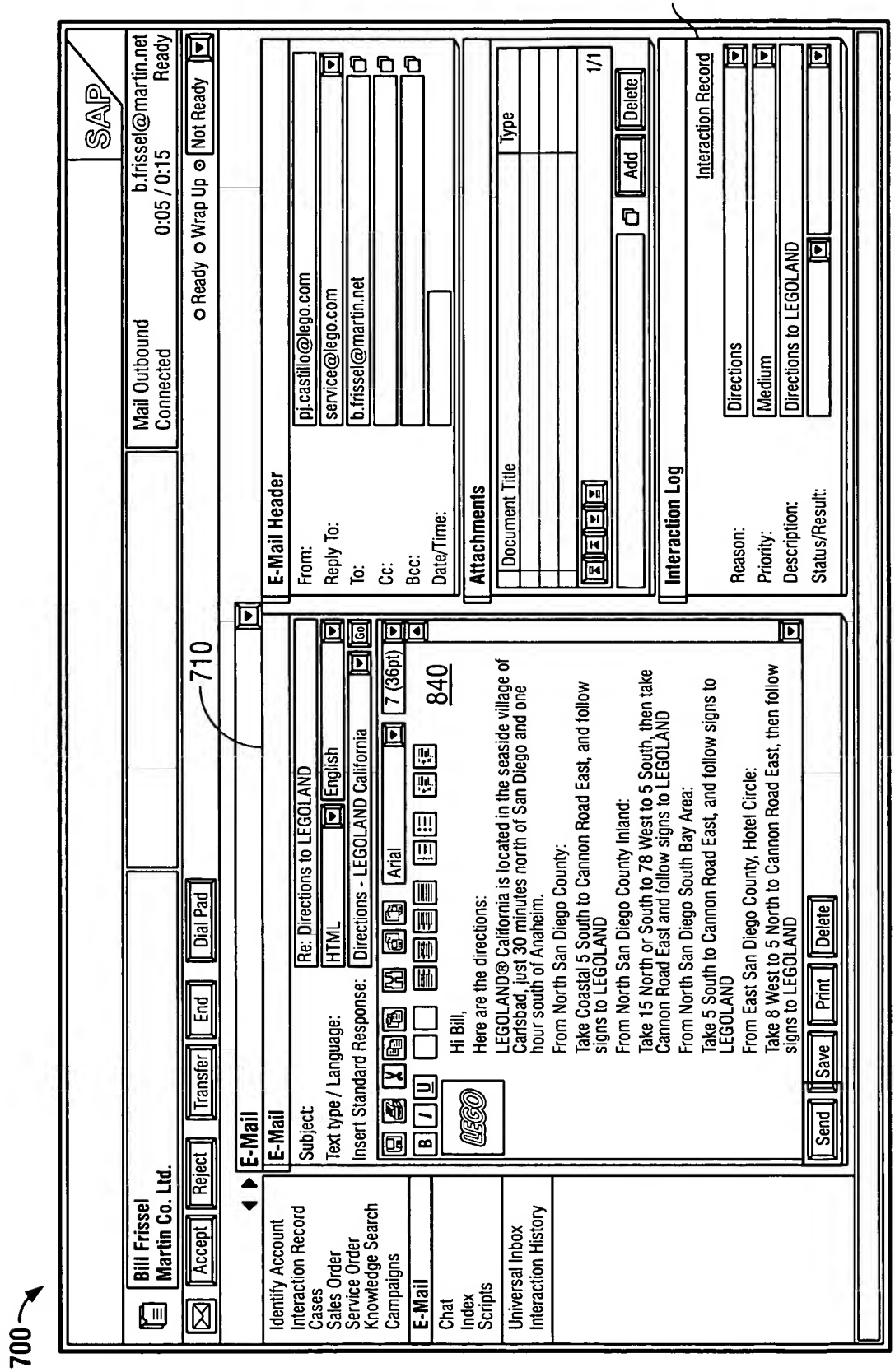
700
710
718
840
SAP
Bill Frissel
Martin Co. Ltd.
Mail Outbound
Connected
b.frissel@martin.net
0:05 / 0:15
Ready
Accept
Reject
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
E-Mail
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
E-Mail
Subject:
Re: Directions to LEGOLAND
Text type / Language:
HTML
English
Insert Standard Response:
Directions - LEGOLAND California
Go
Arial
7 (36pt)
Hi Bill,
Here are the directions:
LEGOLAND® California is located in the seaside village of Carlsbad, just 30 minutes north of San Diego and one hour south of Anaheim.
From North San Diego County:
Take Coastal 5 South to Cannon Road East, and follow signs to LEGOLAND
From North San Diego County Inland:
Take 15 North or South to 78 West to 5 South, then take Cannon Road East and follow signs to LEGOLAND
From North San Diego South Bay Area:
Take 5 South to Cannon Road East, and follow signs to LEGOLAND
From East San Diego County, Hotel Circle:
Take 8 West to 5 North to Cannon Road East, then follow signs to LEGOLAND
Send
Save
Print
Delete
E-Mail Header
From:
pj.castillo@lego.com
Reply To:
service@lego.com
To:
b.frissel@martin.net
Cc:
Bcc:
Date/Time:
Attachments
Document Title
Type
1/1
Add
Delete
Interaction Log
Interaction Record
Reason:
Directions
Priority:
Medium
Description:
Directions to LEGOLAND
Status/Result:

FIG. 8F

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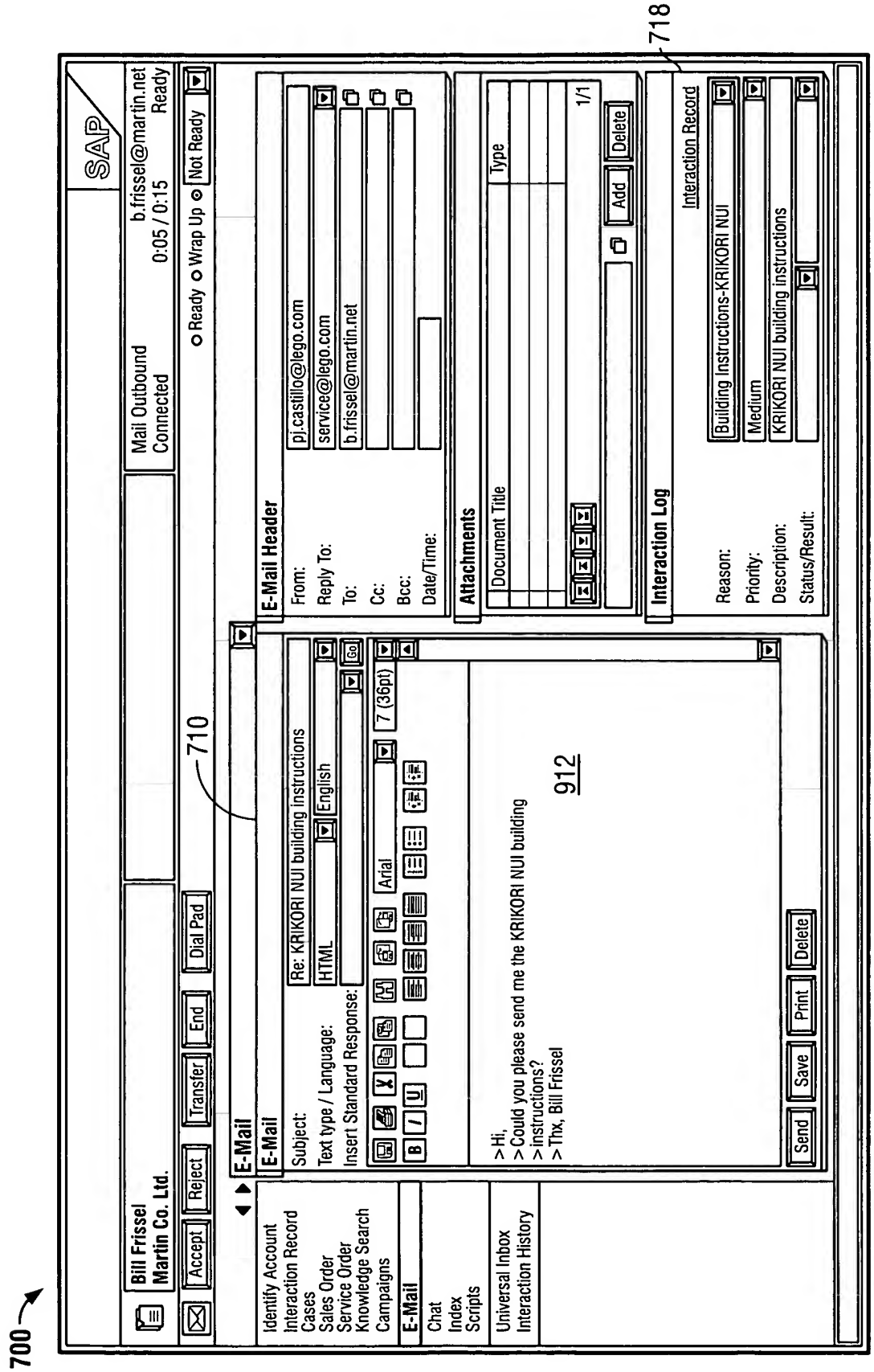
700
SAP
Bill Frissel
Martin Co. Ltd.
Mail Outbound
Connected
b.frissel@martin.net
0:05 / 0:15
Ready
Accept
Reject
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
710
E-Mail
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
E-Mail
Subject:
Re: KRIKORI NUI building instructions
Text type / Language:
HTML
English
Insert Standard Response:
Go
Arial
7 (36pt)
> Hi,
> Could you please send me the KRIKORI NUI building
> instructions?
> Thx, Bill Frissel
912
Send
Save
Print
Delete
E-Mail Header
From:
pj.castillo@lego.com
Reply To:
service@lego.com
To:
b.frissel@martin.net
Cc:
Bcc:
Date/Time:
Attachments
Document Title
Type
1/1
Add
Delete
Interaction Log
718
Interaction Record
Reason:
Building Instructions-KRIKORI NUI
Priority:
Medium
Description:
KRIKORI NUI building instructions
Status/Result:

FIG. 9A

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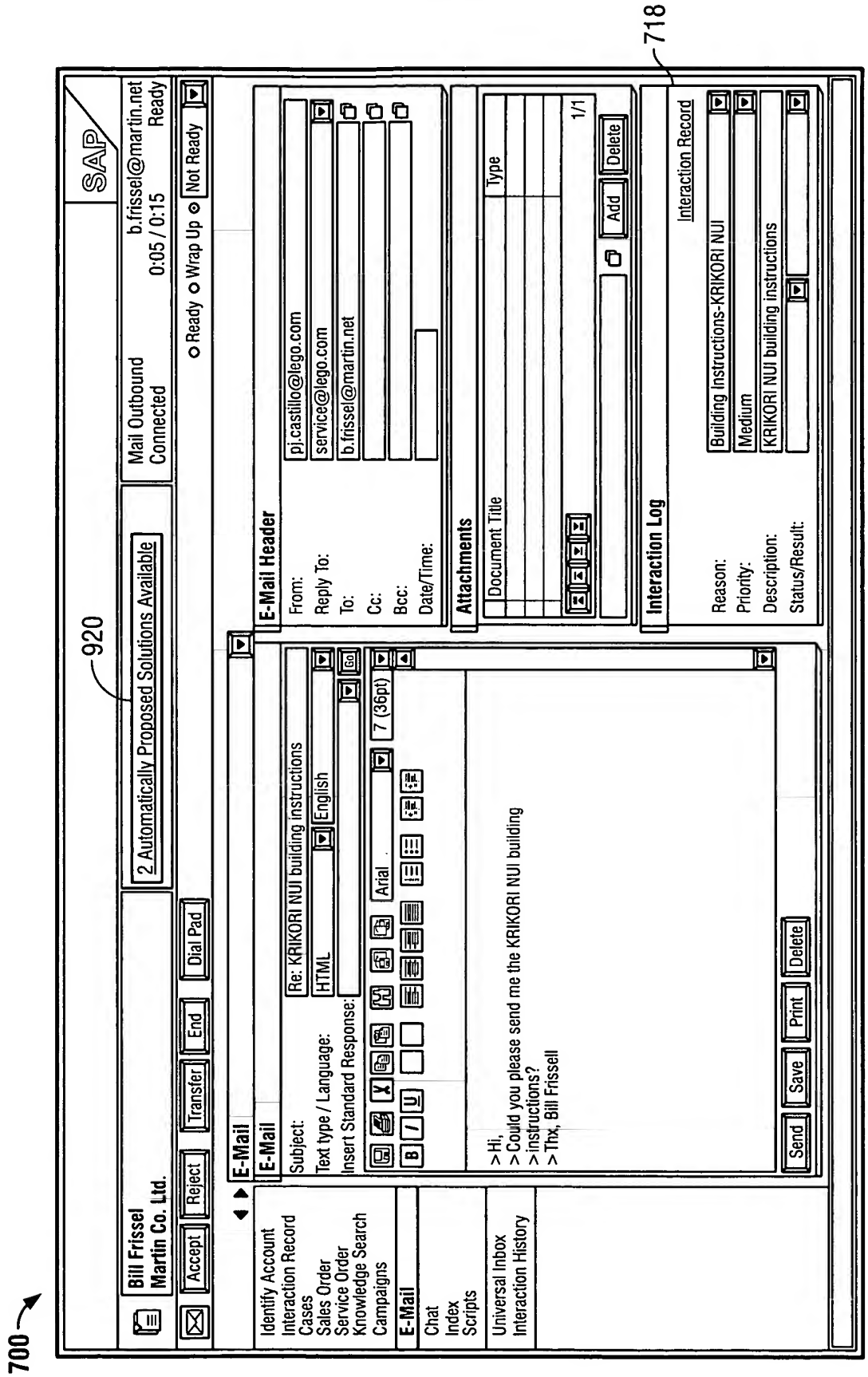
700
920
718
SAP
Bill Frissel
Martin Co. Ltd.
2 Automatically Proposed Solutions Available
Mail Outbound
Connected
b.frissel@martin.net
0:05 / 0:15
Ready
Accept
Reject
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
E-Mail
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
E-Mail
Re: KRIKORI NUI building instructions
Subject:
Text type / Language:
HTML
English
Insert Standard Response:
Go
Arial
7 (36pt)
> Hi,
> Could you please send me the KRIKORI NUI building
> instructions?
> Thx, Bill Frissell
Send
Save
Print
Delete
E-Mail Header
From:
Reply To:
To:
Cc:
Bcc:
Date/Time:
pj.castillo@lego.com
service@lego.com
b.frissel@martin.net
Attachments
Document Title
Type
1/1
Add
Delete
Interaction Log
Interaction Record
Reason:
Priority:
Description:
Status/Result:
Building Instructions-KRIKORI NUI
Medium
KRIKORI NUI building instructions

FIG. 9B

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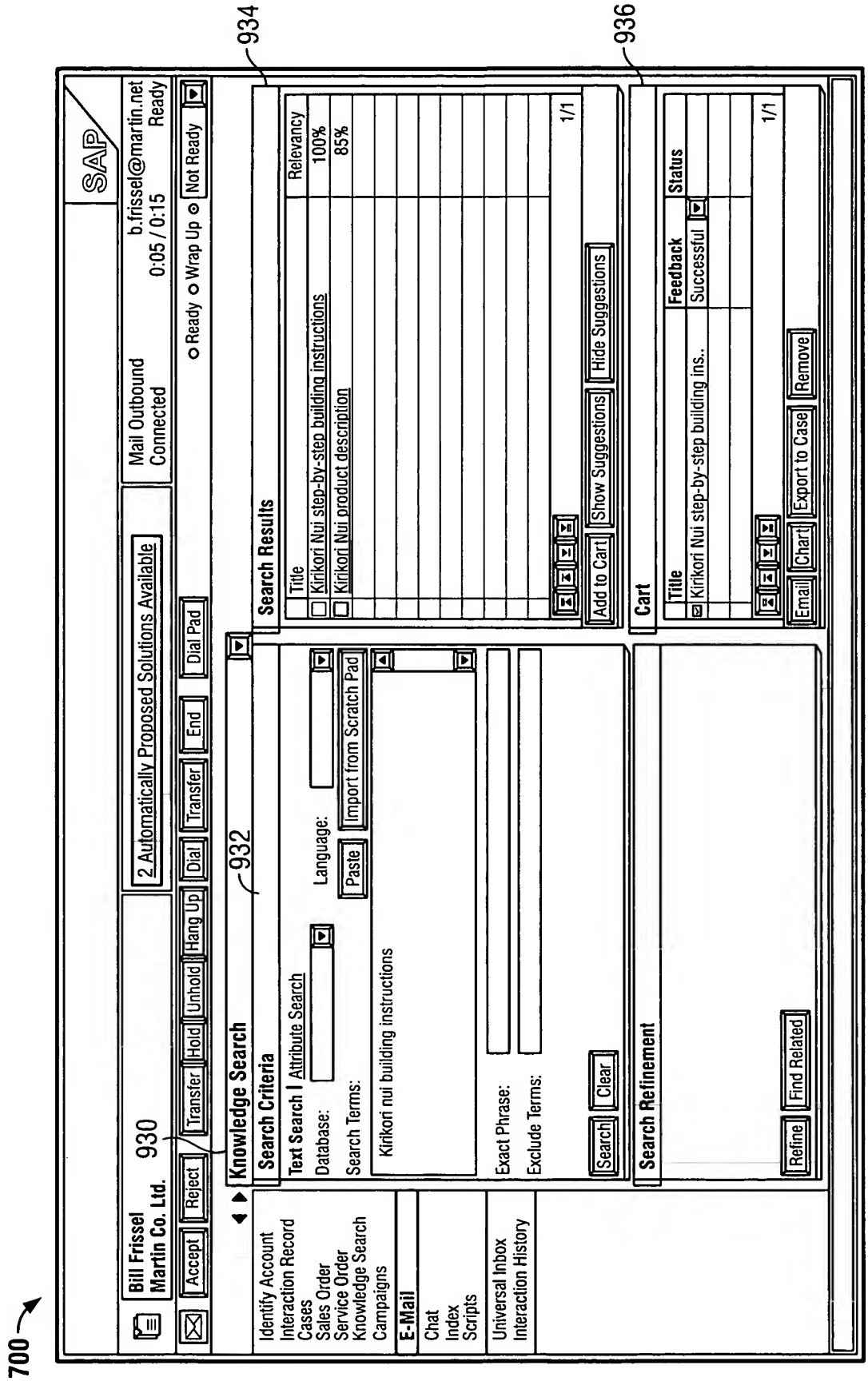
700
SAP
Bill Frissel
Martin Co. Ltd.
930
2 Automatically Proposed Solutions Available
Mail Outbound
Connected
b.frissel@martin.net
Ready
0:05 / 0:15
Accept
Reject
Transfer
Hold
Unhold
Hang Up
Dial
Transfer
End
Dial Pad
Ready
Wrap Up
Not Ready
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
Knowledge Search
932
Search Criteria
Text Search | Attribute Search
Database:
Language:
Search Terms:
Paste
Import from Scratch Pad
Kirikori nui building instructions
Exact Phrase:
Exclude Terms:
Search
Clear
Search Refinement
Refine
Find Related
Search Results
934
Title
Relevancy
Kirikori Nui step-by-step building instructions
100%
Kirikori Nui product description
85%
1/1
Add to Cart
Show Suggestions
Hide Suggestions
Cart
936
Title
Feedback
Status
Kirikori Nui step-by-step building ins..
Successful
1/1
Email
Chart
Export to Case
Remove

FIG. 9C

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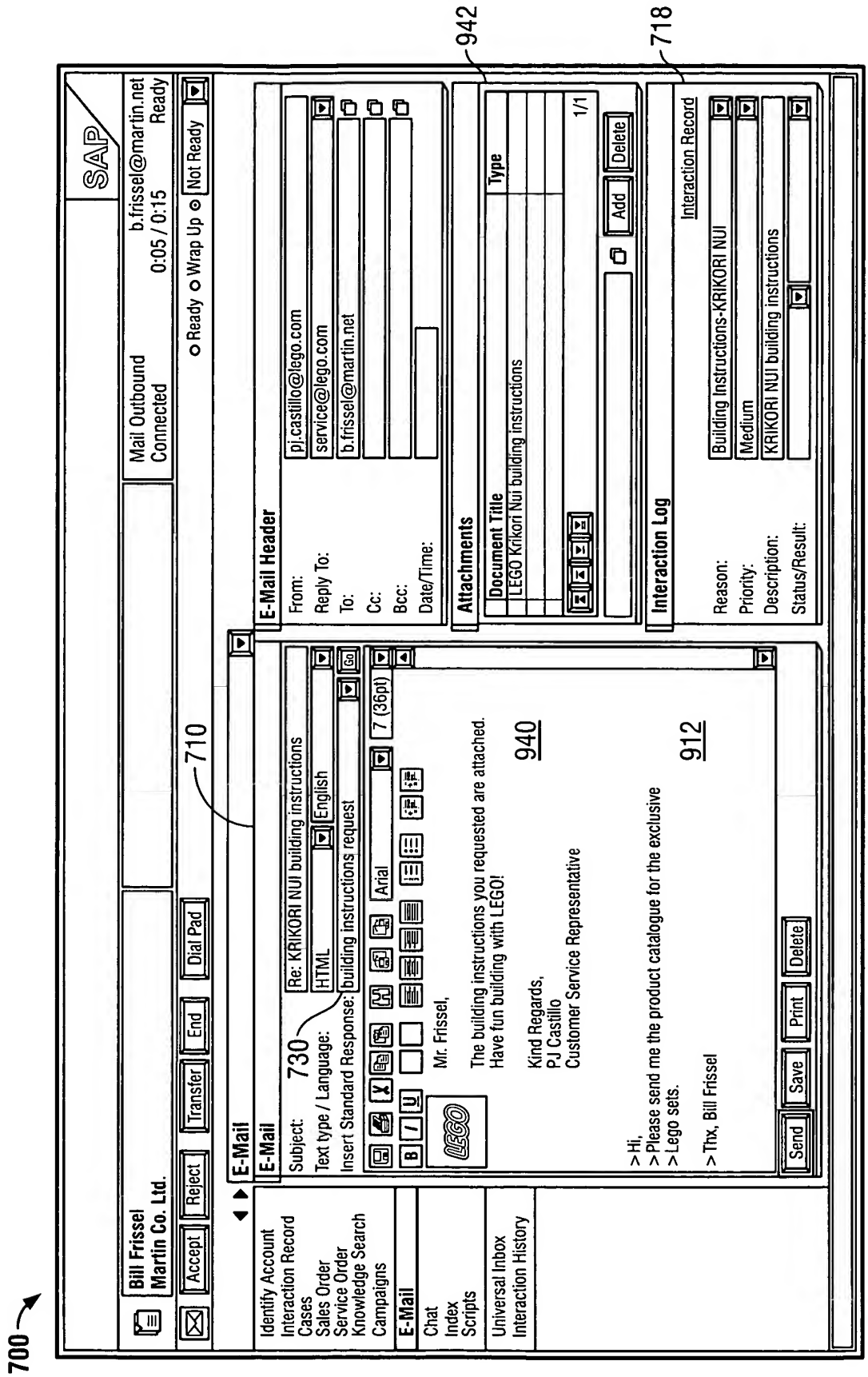
700
710
730
912
940
942
718
SAP
Bill Frissel
Martin Co. Ltd.
Accept
Reject
Transfer
End
Dial Pad
Mail Outbound
Connected
0:05 / 0:15
b.frissel@martin.net
Ready
Ready
Wrap Up
Not Ready
E-Mail
Identify Account
Interaction Record
Cases
Sales Order
Service Order
Knowledge Search
Campaigns
E-Mail
Chat
Index
Scripts
Universal Inbox
Interaction History
E-Mail
Subject:
Re: KRIKORI NUI building instructions
Text type / Language:
HTML
English
Insert Standard Response:
building instructions request
Go
Arial
7 (36pt)
Mr. Frissel,
The building instructions you requested are attached.
Have fun building with LEGO!
Kind Regards,
PJ Castillo
Customer Service Representative
> Hi,
> Please send me the product catalogue for the exclusive
> Lego sets.
> Thx, Bill Frissel
Send
Save
Print
Delete
E-Mail Header
From:
pj.castillo@lego.com
Reply To:
service@lego.com
To:
b.frissel@martin.net
Cc:
Bcc:
Date/Time:
Attachments
Document Title
Type
LEGO Krikori Nui building instructions
1/1
Add
Delete
Interaction Log
Interaction Record
Reason:
Building Instructions-KRIKORI NUI
Priority:
Medium
Description:
KRIKORI NUI building instructions
Status/Result:

FIG. 9D

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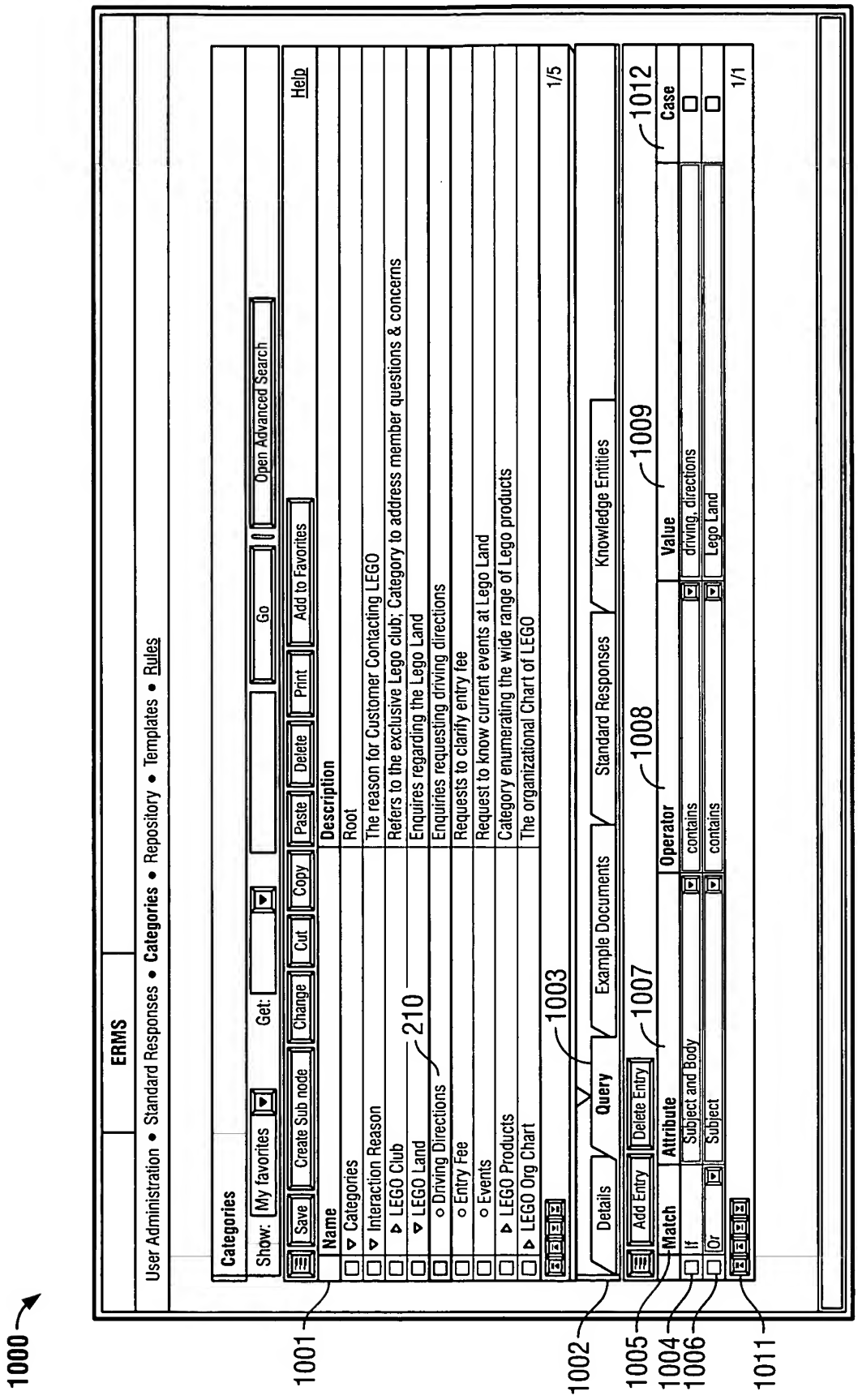
1000
ERMS
User Administration • Standard Responses • Categories • Repository • Templates • Rules
Categories
Show: My favorites
Get:
Go
Open Advanced Search
Save
Create Sub node
Change
Cut
Copy
Paste
Delete
Print
Add to Favorites
Help
Name
Description
Categories
Root
Interaction Reason
The reason for Customer Contacting LEGO
LEGO Club
Refers to the exclusive Lego club; Category to address member questions & concerns
LEGO Land
Enquires regarding the Lego Land
Driving Directions
Enquiries requesting driving directions
Entry Fee
Requests to clarify entry fee
Events
Request to know current events at Lego Land
LEGO Products
Category enumerating the wide range of Lego products
LEGO Org Chart
The organizational Chart of LEGO
1/5
210
1003
Details
Query
Example Documents
Standard Responses
Knowledge Entities
1009
1008
1007
1012
Add Entry
Delete Entry
Match
Attribute
Operator
Value
Case
If
Subject and Body
contains
driving, directions
Or
Subject
contains
Lego Land
1/1
1001
1002
1005
1004
1006
1011

FIG. 10

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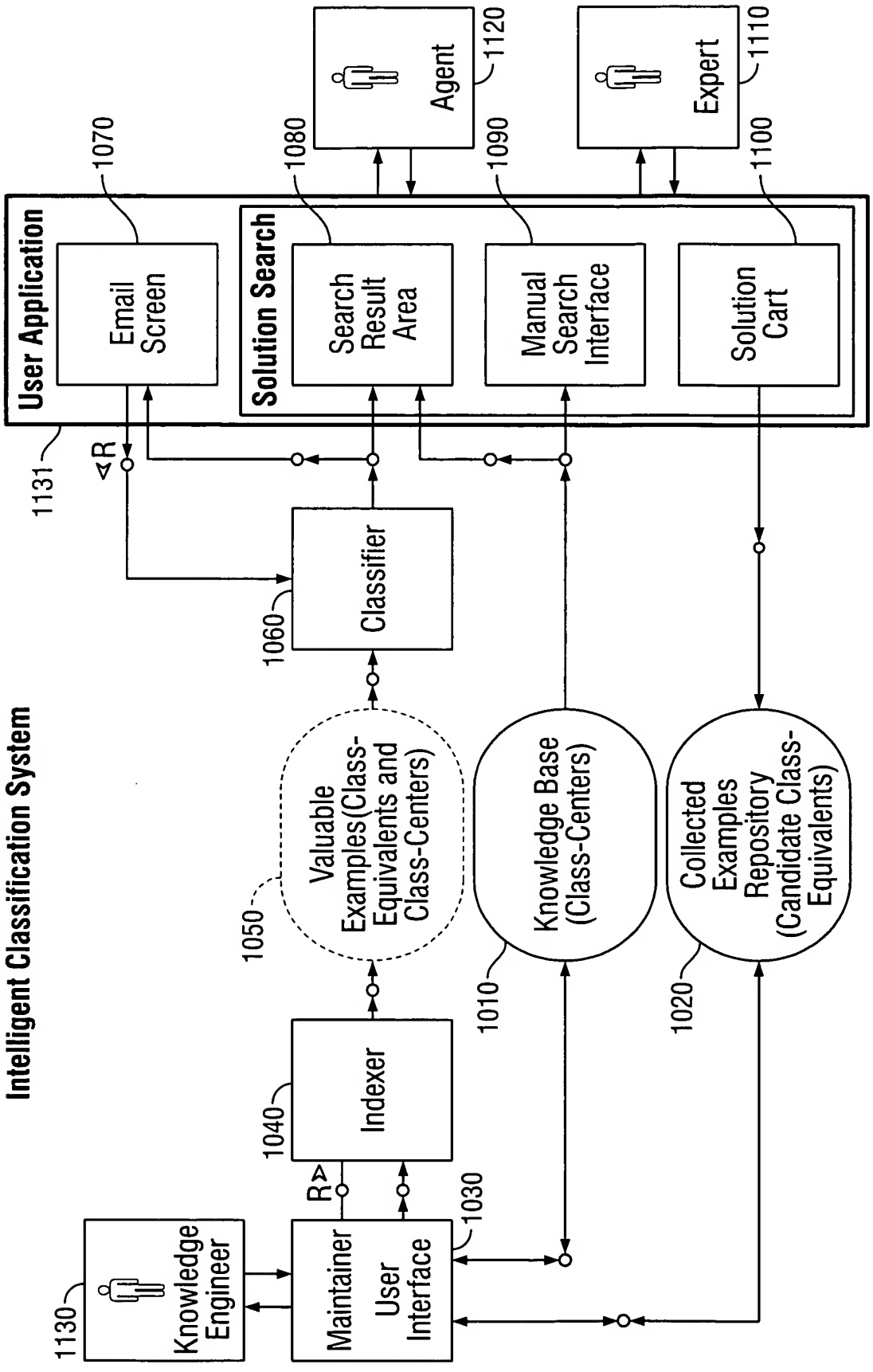
Intelligent Classification System
User Application
Email Screen
Solution Search
Search Result Area
Manual Search Interface
Solution Cart
Agent
Expert
Classifier
Indexer
Maintainer User Interface
Knowledge Engineer
Valuable Examples(Class-Equivalents and Class-Centers)
Knowledge Base (Class-Centers)
Collected Examples Repository (Candidate Class-Equivalents)
1070
1080
1090
1100
1120
1110
1131
R
1060
1040
1030
1130
1050
1010
1020

FIG. 11

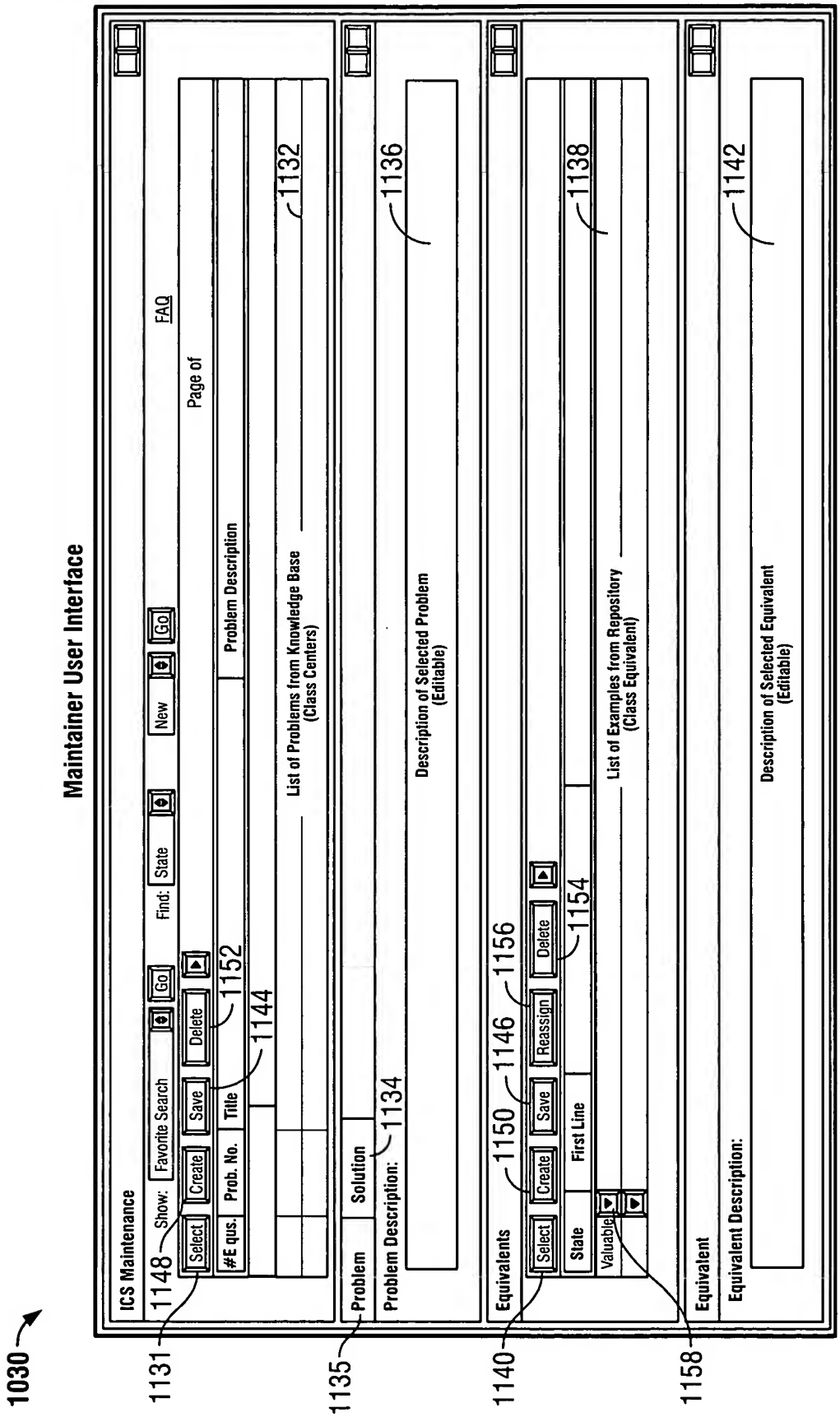
1030
Maintainer User Interface
ICS Maintenance
Show:
Favorite Search
Go
Find:
State
New
Go
FAQ
Page of
Select
Create
Save
Delete
#E qus.
Prob. No.
Title
Problem Description
List of Problems from Knowledge Base
(Class Centers)
1132
1144
1152
1148
1131
Problem
Solution
Problem Description:
1134
Description of Selected Problem
(Editable)
1136
1135
Equivalents
1150
1146
1156
Select
Create
Save
Reassign
Delete
1154
State
First Line
Valuable
List of Examples from Repository
(Class Equivalent)
1138
1140
Equivalent
Equivalent Description:
Description of Selected Equivalent
(Editable)
1142
1158

FIG. 12

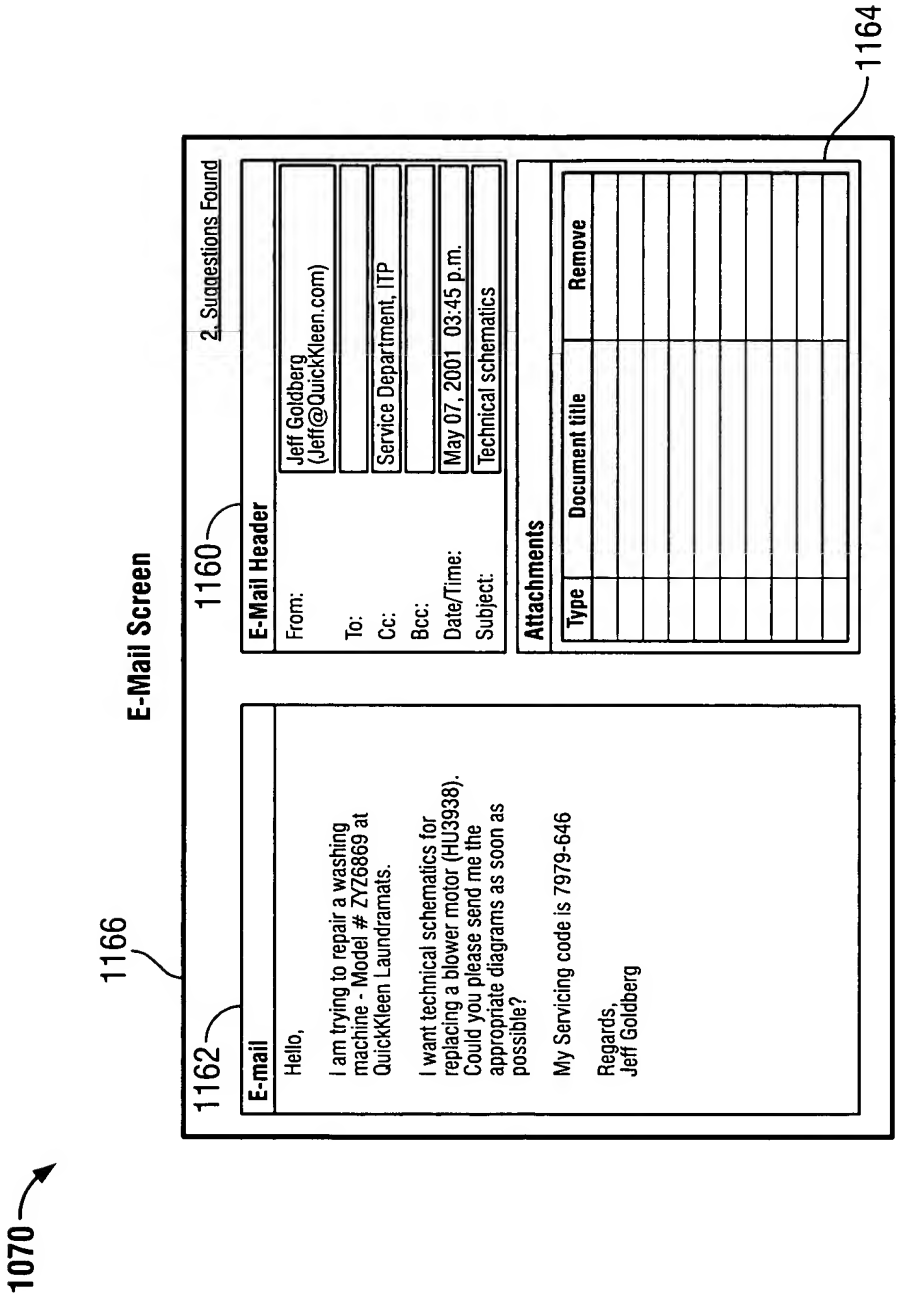
1070
E-Mail Screen
1162
1166
1160
1164
2. Suggestions Found
E-mail
Hello,
I am trying to repair a washing machine - Model # ZYZ6869 at QuickKleen Laundramats.
I want technical schematics for replacing a blower motor (HU3938). Could you please send me the appropriate diagrams as soon as possible?
My Servicing code is 7979-646
Regards,
Jeff Goldberg
E-Mail Header
From:
To:
Cc:
Bcc:
Date/Time:
Subject:
Jeff Goldberg (Jeff@QuickKleen.com)
Service Department, ITP
May 07, 2001 03:45 p.m.
Technical schematics
Attachments
Type
Document title
Remove

FIG. 13

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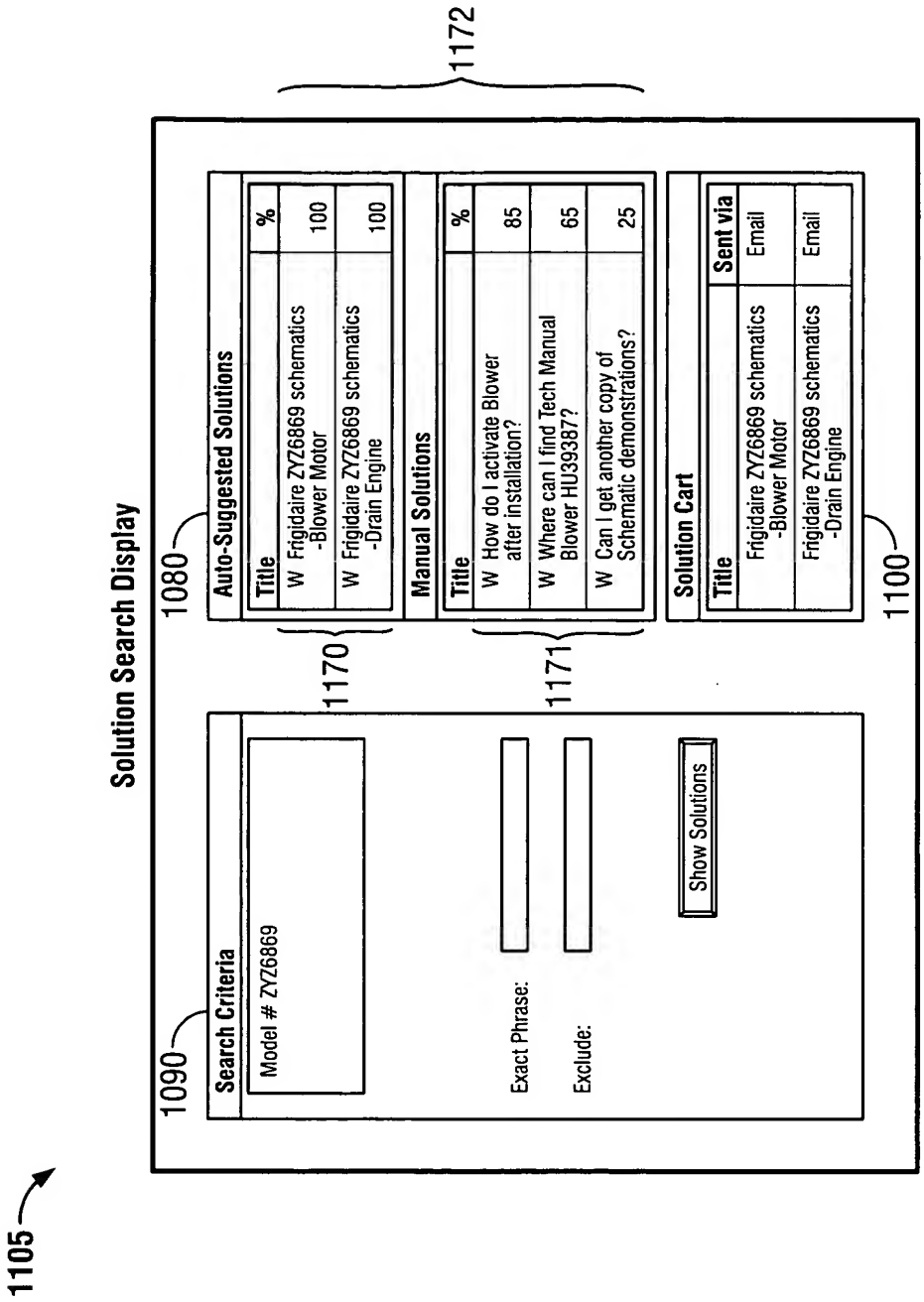
1105
Solution Search Display
1090
Search Criteria
Model # ZYZ6869
Exact Phrase:
Exclude:
Show Solutions
1080
Auto-Suggested Solutions
Title
%
W Frigidaire ZYZ6869 schematics -Blower Motor
100
W Frigidaire ZYZ6869 schematics -Drain Engine
100
1170
Manual Solutions
Title
%
W How do I activate Blower after installation?
85
W Where can I find Tech Manual Blower HU39387?
65
W Can I get another copy of Schematic demonstrations?
25
1171
1172
Solution Cart
Title
Sent via
Frigidaire ZYZ6869 schematics -Blower Motor
Email
Frigidaire ZYZ6869 schematics -Drain Engine
Email
1100

FIG. 14

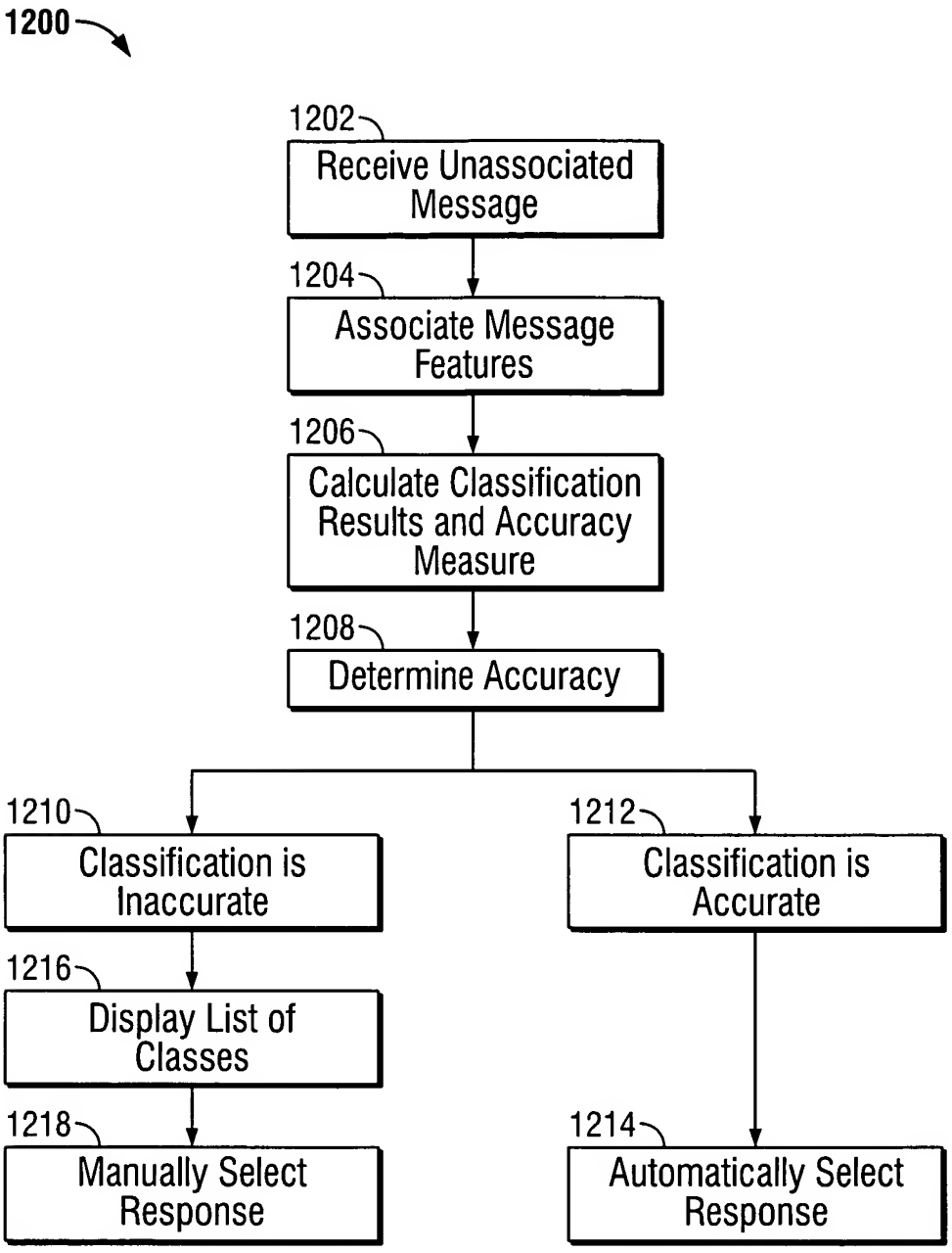
1200
1202
Receive Unassociated Message
1204
Associate Message Features
1206
Calculate Classification Results and Accuracy Measure
1208
Determine Accuracy
1210
Classification is Inaccurate
1212
Classification is Accurate
1216
Display List of Classes
1218
Manually Select Response
1214
Automatically Select Response

FIG. 15